COMMUNICATIONS EQUIPMENT CATALOG **SPRING/SUMMER 2016**

HAM RADIO OUTLET®

WORLDWIDE DISTRIBUTION

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FT2DR

THE MOST ADVANCED DIGITAL PORTABLE

C4FM/FM 144/430 MHz
Dual Band Transceiver

Read more on page 58

FTM-3200DR

NEXT GENERATION OF DIGITAL/ANALOG 2M MOBILE

144MHz 65W C4FM/FM
Single Band Mobile Transceiver

Read more on page 21

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ALINCO®

Quality. Style. Performance!

Distributed in North America by
REMTRONIX

Beautifully Simple and Simply Beautiful.



145/440MHz Twinband FM Transceiver

DR-735T

NEW





The Alinco DR-735 features eight full color LEDs enabling you to customize your display colors! Using 10 standard colors plus 6 color memory channels in the set mode, the DR-735 lets you assign different colors for different functions. It's your choice whether to use blue for VHF memories, pink for local repeaters, green for aviation channels or yellow for UHF channels, and you can even set the status colors for TX/RX/Standby separately.

This "beautifully simple" radio has fully independent keys and dials to deliver true dual-band operation. The removable front panel can be remotely mounted or inverted for optimal speaker placement. Building on Alinco's reputation for simple operating commands and straight-forward key design, the DR-735 is a radio you can start enjoying from the moment you power up!

Specifications:

Frequencies: TX 144.00 - 147.995MHz / 430.00 - 449.995MHz, RX 108.000~173.995MHz / 400.000~479.995MHz
Modulation: 16K0F3E(FM)/8K50F3E(Narrow FM)/F1E(optional)/F2D(1200bps)/A3E(RX only/AM)
Memory ch: Free-programmable 1000ch / R+L 100ch each / dual 100ch and 5 pairs program scan
Current Drain (Approx.): 12A TX high / 0.6A RX max. / 0.4A RX squelched
Dimensions & weight (Approx.): 140mm(W) X 60mm(H) X 188mm(D) or 5.5 x 2.4 x 7.4 inches / 1.3kg or 45.9oz
Output: High 50W / Mid 20W / Low 5W, Freq.stability ±2.5ppm (TCXO:-10℃~+60℃)
Receiver system: Double Conversion Superheterodyne
Sensitivity (-12dB SINAD): -14dBμ(0.20μV) or better
Audio output: 2W or more (8Ω 10% THD)

Please visit Alinco.com for more details.

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Products intended for properly licensed operators. FCC part 15/C certified. Specifications subject to change without notice or obligation.

ALINCO

Base Transceivers



All-Mode TRANSCEIVER
Analog / Digital Hybrid

DX-SR9T – $Call

150 kHz - 30 MHz

This hybrid, stand-alone analog and digital SDR transceiver covers all short-wave and HF amateur bands allocated to North America. Covers 160 m to 10 m amateur bands including 5.3 MHz in SSB, CW, AM ,FM and IQ output modes. Output power is 100W SSB/CW and FM, 40 W in AM with low and super-low power settings for QRP operation. In addition, the general coverage receiver covers 135 KHz to 30 MHz in all modes.

Features include:
- Front panel separation.
- Large LCD display.
- Front facing speaker.
- Auto-keyer.
- Simple operating commands.
- Download free SDR software from Alinco.com. Programming cable ERW-4C or ERW-7 required for SDR operation.

All Mode TRANSCEIVER
DX-SR8T – $Call

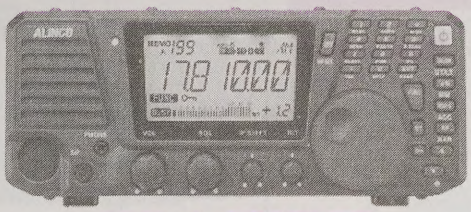
150 kHz - 30 MHz

SSB / CW / AM / FM

The DX-SR8T covers 160 m to 10 m amateur bands including 5.3 MHz in SSB, CW, AM and FM modes. Output power is 100 W SSB / CW / FM and 40 W in AM with low and super-low power settings for QRP operation. General coverage receiver of all modes 135 kHz to 30 MHz. Receiver features are similar to the DX-R8T.

Extended Warranties Available for Alinco Radios. See page 41.

Desktop Receiver



All Mode RECEIVER
DX-R8T – $Call

150 kHz - 30 MHz
SSB / CW / AM / FM / IQ

Monitor SWL signals from aviation, navigation and data sources.
- IQ signal output allows use of third-party SDR software.
- Front and rear jacks.
- Direct frequency input to the dual VFO system.
- Detachable front control panel mounting options.
- Large LCD display.
- Front speaker and 2 W audio output.
- Rugged die cast chassis.
- Narrow ceramic filters (AM 2.4 kHz, SSB 1 kHz) and 0.5 kHz audio filtering for CW.
- 4-level RF amp / attenuator.
- IF shift and RIT.
- Noise blanker.
- 3 banks / 600 memory channels.
- Two sets of programmed search pairs and varieties of scanning modes.
- Auto power off, sleep timer, dial and key locks, RX indicator illumination.
- Computer utility software to manage settings and edit memories.
- Receive circuitry: Double conversion superheterodyne.
- Receiver current drain: 1.0 A.
- RIT range: ±1.2 kHz.
- IF Frequency: 1st 71.75 MHz, 2nd 455 kHz.
- Spurious and image rejection ratio: more than 70 dB.
- Antenna impedance: 50 ohm unbalanced.
- Frequency stability: ± 1 ppm.
- Power required: 13.8 VDC ± 15%.

EDS-17

Front panel remote kit optional. 5 m cable, front panel bracket, unit cover and hardware.

Handheld Receiver

Wide Band Receiver
DJ-X11T

$Call – HRO Price



Get the power of a desktop receiver in a handheld!! Features: 2 VFO simultaneous receive; covers 0.05 to 1299.995 MHz* in all modes; 1200 memories; sub-band coverage VHF 118-171 MHz and 336 to 470 MHz in AM / NFM; IQ signal can be used with 3rd party software and discriminator output; easy-to-use twin dials; selectable tuning steps; 3 selectable scan speeds; freeware to operate as a software defined radio.

*Cell band blocked.

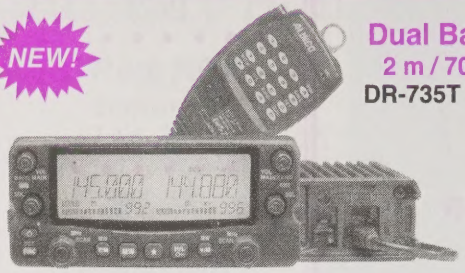
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Dual Band Mobiles

NEW!



Dual Band
2 m / 70 cm
DR-735T – $Call

- 144 MHz / 440 MHz FM transceiver.
- TX 144-148 MHz / 430-450 MHz.
- RX 108-174 MHz (AM / FM) 400-480 MHz (FM).
- Receiver double conversion.
- Civil aviation and utility receive.
- 1000 channel programmable memory.
- Full duplex / X-band repeat.
- 50 / 20 / 5 W power output on both bands.
- Huge alphanumeric LCD display.
- Multi-color RGB backlight.
- Independent dial / vol / SQ knobs.
- Removable front control head.
- Wide variety of scanning features.



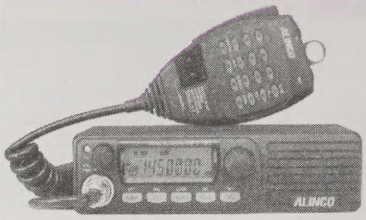
Dual Band 2 m / 70 cm
DR-635T – $Call

This mobile / base VHF+UHF transceiver has an expanded range receiver.

- VHF output: 50 / 25 / 5 W; UHF 35 / 20 / 5 W.
- 200 memories.
- Cross-band repeater functions.
- Large, 6 character alphanumeric display with selectable color illumination.
- Removable control head.
- Internal duplexer.
- CTCSS and DCS encode / decode plus four tone bursts.
- CTCSS tone and DCS scan.
- Optional 1200 / 9600 bps packet (EJ-50U).
- Programmable VFO and memory scan modes.
- Air band reception.
- Receive frequencies: 87.5-107.995, 108-173.995, 335-479.995 MHz.

Extended Warranties Available

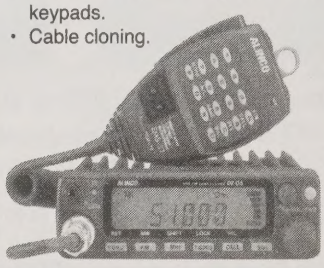
Single Band Mobiles



DR-B185HT
2 Meters / 85 Watts
$Call – HRO Price

The compact DR-B185 is loaded with high tech features: high stability PLL synthesizer, 85 W max output, 7-digit alphanumeric display, and a wide variety of scanning features. Yet the operation is intuitive and simple.

- TX 144-147.995 MHz; RX 136-173.995 MHz.
- Scanning functions include DCS / CTCSS / priority / group and timer / busy modes.
- Wide and narrow FM modes
- 39 tone CTCSS / DCS / 2-tone encode and decode.
- High / low power setting.
- Offset direction and frequency variable.
- Keypad lockout / reverse function.
- Alphanumeric tag / display dimmer.
- Automatic illumination brightness.
- Time out timer.
- BCLO and auto power off.
- Tone-burst tones / auto-dialer.
- DTMF TX speed, pause and monitoring features.
- S-METER squelch.
- Multifunctional microphone with keypads.
- Cable cloning.



DR-06T 6 Meters
$Call – HRO Prices

Catch the exciting world of the 6 m band with the DR-06T. Covering 50-53.995 MHz with an output of 50 W, it has convenient scan features, a variety of selective calling tones, theft alarm, ignition key on/off, direct frequency input, and controls from the EMS57 key pad microphone.



DR-435TMKIII
440 MHz
DR-235TMKIII
220 MHz
$Call – HRO Prices

Features a unique multifunction backlit microphone with direct frequency input. The 144 MHz, 220 MHz, and 440 MHz models accept optional EJ-41U internal TNC or EJ-47U digital voice module. The MKIII TCXO supports a specification of ± 2.5 ppm frequency stability.



DR-135TMKIII
2 Meters
$Call – HRO Price

2 meter FM and Airband receive (AM). Ignition key power control, theft alarm, 7 place alphanumeric display, front panel data input, optional internal packet module to use with APRS®, rear panel serial port connection. 100 memories, 10 autodial memories.

Alinco Mobile Specifications

Model	Primary Use	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out	Memory Channels	Ant Z ohms	Mike Z ohms	Sensitivity at 12 dB	Height in	Width in	Depth in	Weight lbs
DR-135TMKIII#	Mobile	2 m	13.8 VDC	11 A	400 mA	5/10/50 W	100	50	600	<.16 μV	1.57	5.58	6.83	2.2
DR-235TMKIII#	Mobile	222-225 MHz	13.8 VDC	8 A	400 mA	5/10/25 W	100	50	600	<.16 μV	1.57	5.58	6.83	2.2
DR-435TMKIII#	Mobile	430-450 MHz	13.8 VDC	10 A	400 mA	5/10/35 W	100	50	600	<.16 μV	1.57	5.58	6.83	2.2
DR-06T	Mobile	50-53.995 MHz	13.8 VDC	11 A	600 mA	50 W	100	50	600	<.25 μV	1.57	5.58	6.83	2.2
DR-635T	Mobile	2 m / 70 cm	13.8 VDC	11 A	1.2 A	50 W/35 W	50	50	600	<.16 μV	1.6	5.6	7	2.43
DR-638T	Mobile	2 m / 70 cm	13.8 VDC	11 A	500 mA	5 /10/25/50 W	758	50	600	<.25 μV	1.6	5.5	8.35	3.3
DR-735T	Mobile	2 m / 70 cm	13.8 VDC	12 A		5 /20/50 W	1000	50	600		2.3	5.6	7.4	2.6
DRB185TH	Mobile	2 m	13.8 VDC	6 A / 20 A	500 mA	5 / 65-85	500	50	600	<.25 μV	1.7	6.44	7.21	3.3

* Expand to 100 with optional EJ-19U †Expand to 240 with optional EJ-23U #TXCO with ± 2.5ppm frequency stability.

HANDHELDS COMMERCIAL RADIOS

Single Band HTs

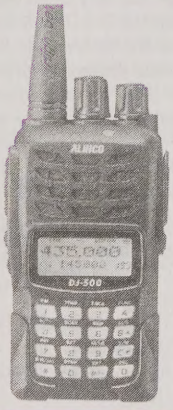


DJ-V27T - 220 MHz
$Call – HRO Prices

This compact, full-powered FM HT is submersible to 3 ft for 30 minutes. It is perfect for outdoor activities. Input frequencies directly from keypad. 200 memories plus one call channel. 39 CTCSS encode-decode settings. Digital coded squelch.

Dual Band HT

Dual Band
2 m / 70 cm
DJ-500T
$Call – HRO Price



The DJ-500T provides landmobile-grade operation with 5 Watts output, CTCSS, DTMF, DCS and 5 tones as standard features. Includes direct frequency input, alphanumeric channel labels, 200 memory channels, dot-matrix with 3 color selectable display. Li-Ion battery and stand charger standard.

Tri-Band HT

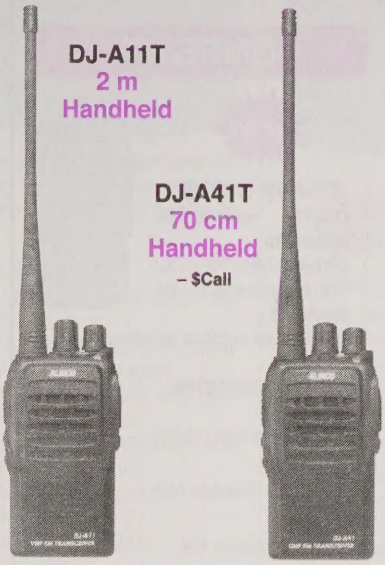


2 m / 70 cm / 1.2 GHz
DJ-G7T
$Call – HRO Price

The DJ-G7T tunes 0.531-1300 MHz* continuously. Full duplex receive with 144 / 430 / 1200 MHz bands. AM and WFM modes allow you to hear aviation and broadcast bands. Scan modes and options include 50 pairs of programmable scan memories. Timing adjustable priority scanning and Alinco's Channel-Scope – visualize the presence of radio signals on the display. Output power up to 5 Watts on 2 m.

*Cell band blocked.

Commercial HTs



DJ-A11T
2 m
Handheld

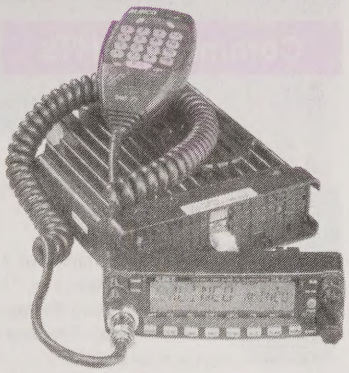
DJ-A41T
70 cm
Handheld
– $Call

The tiny DJ-A11and DJ-A41 measure only 2.3 x 3.85 x 1.4 inches (with battery pack). They are fully PC programmable / cloneable. There are up to 128 programmable channels in 8 groups with 16 channels in each group. Features like CTCSS / DCS / DTMF signaling, alert tones, voice-compander, channel knob lock, narrow bandwidth, BCLO, TOT, VOX, scans, priority monitoring and more are all standard.

- Frequency coverage: [A11] 136-174 MHz, [A41] 400-470 MHz.
- Output power: approx. 5 / 2 / 0.5 W.
- Comes with a rechargeable Li-Ion pack, desktop quick-charger and high-performance whip antenna.
- Scan channels / priority.
- 50 CTCSS and 116 DCS.
- External microphone and speaker ports
- Internal VOX.
- Narrow FM.
- Auto-power-off, busy channel lockout, time-out timer.

Extended Warranties Available. See Page 41.

Commercial Mobile



Analog Dual Band
2 m / 70 cm
DR-638T – $Call

With full duplex capability, cross-band repeat and a remotely mountable control head, the DR-638 is a solid performer for base or mobile operation. The large, 6 character alphanumeric display features variable colors for custom illumination. Ignition key on/off feature, theft alarm, extended receive capabilities, a variety of signaling and scan modes are also included. The backlit, DTMF microphone EMS-77 allows remote control of the transceiver.

- 758 channels programmable.
- H / M / L power output settings: VHF– 50 W / 25 W / 10 W / 5 W; UHF– 40 W / 25 W / 10 W / 5 W.
- Inversion scrambling.
- Internal duplexer – single antenna connector.
- Removable control head can be remotely mounted or inverted for optimal speaker placement.
- Expanded receive range includes AM civil aviation band.
- Crossband repeat.
- CTCSS, DCS, tone-burst tones, 2-tone and 5-tone signaling.
- CTCSS tone and DCS scan.
- Variety of scan modes and priority channel monitoring.
- TOT, BCLO, talk around, reverse and ANI.
- Utility software and cable cloning.
- Ignition key activated power on/off feature.

Alinco Handheld Specifications

Model	Frequency Range	Power	Current Drain Xmit	Current Drain Rec	Power Out **	Memory Channels	Ant Z ohms	Mike Z ohms	Sensitivity at 12 dB	Height in	Width in	Depth in	Weight lbs
DJ-175T	2 m / 70 cm	3-7.6VDC	320 mA	70 mA	300 mW *	200	50	2k	<.15 µV	3.7	2.2	0.57	0.23
DJ-500T	2 m / 70 cm	7.4 VDC	1400 mA	70 mA	5 W	200	50	2k		3.86	2.32	1.38	0.5
DJ-A11T	2 m	7.4 VDC	1400 mA	300 mA	.5 / 2 / 5	128	50	2k	<.25 µV	3.9	2.32	1.4	0.5
DJ-G7T	2 m/70 cm 1240-1299.995	7.4 VDC	1.6 A	200mA	5 W †	1000	50	2k	<.15 µV	4.53	2.36	1.18	0.6
DJ-V27T	222-224.995 MHz	7.2 VDC	1.4 A	251 mA	6 W	200	50	2K	<.2 µV	4.33	2.28	1.43	0.61

** Power output is determined by choice of battery pack. †at 13.8VDC * 500mW with 6 VDC #5W 220, 2.5 912MHz.

TERA

Commercial HTs



NEW!

TR-590

- Dual-band VHF / UHF HT.
- 200 channels.
- Part 90 commercial / amateur radio.
- Alpha-Numeric display.
- True dual receive (V+V,U+U,V+U).
- 136-174 / 400-470 MHz RX / TX.
- Ideal for fire, search and rescue, EMS, sheriff, forestry & security operations.

NEW!

TR-500

- Dual-band VHF / UHF handheld.
- 16 channels.
- Part 90 commercial radio.
- Pre-programmed 16 channels.
- 136-174 / 400-470 MHz RX / TX.
- Ideal for small business, school and security operations.



GMRS HT

NEW!



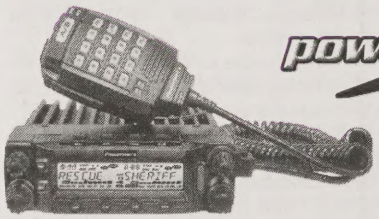
TR-505 GMRS

- GMRS recreational handheld.
- 400-470 MHz RX / TX.
- Pre-programmed 16 channels.
- Ideal for all outdoor activites.

Tera Accessories

PRG-50	USB Programming Cable	$19.95
SPMHD-50	Heavy Duty Speaker Mic	$39.95
SPMIC-50	Compact Speaker Mic	$23.45
CEP-50	Covert Earpiece Mic	$23.95
GHK-50	G-Hook Lapel Mic	$23.95
BAT-50	Extra Li-Ion Battery	$32.95
AAA-50	AAA Battery Case	$16.95
CRG-56	Multi-unit 6-bay Rapid Charger	$189.95

Commercial Mobile Dual Band



powerwerx.com

DB-750X

Dual Band VHF / UHF

750 Channel

All of the features you want in a commercial mobile at an affordable price. Ideal for fire, police, FEMA, CAP, security patrols, business communications, schools, construction crews, universities, and other organizations that have FCC licensed frequencies. Includes 2.5 kHz channel step for FCC 2013 narrowband compliance.

The radio features narrow band transmit (2.5 kHz) except on the Amateur bands (selectable wide or narrow RX), true dual-band receive (V+V, U+U, V+U, U+V), wide RX / TX 136-174 / 400-490 MHz, AM aircraft receive 108-136 MHz, and user selectable multi-colored LCD display.

Since this is a Commercial Land Mobile Multi-band radio, the DB-750X ships keyboard locked. The RPS-DB750X-USB programming software kit is required to initially unlock and program this radio before use.

- 750 memory channels.
- 10 memory banks (with bank linking).
- 7 character alphanumeric display.
- Dual receive operation.
- Wide band (5.0 kHz) operation for Amateur frequencies.
- Narrow band (2.5 kHz) operation for land mobile frequencies (FCC Part 90).
- User selectable multi-colored LCD display.
- Built-in CTCSS / DCS per channel.

Amateur Dual-Band HT

WOUXUN



KG-UV9

VHF / UHF Dual Band

2 m / 70 cm

$CALL

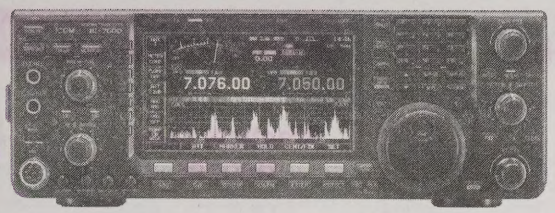
NEW!

The KG-UV9D is a compact, high-performance dual-band handheld amateur radio transceiver with large LCD color display providing up to 5 Watts of RF power on VHF and 4 Watts on UHF, along with high audio output (500 mW).The KG-UV9D features extended operating time (over 18 hours), thanks to the included long life 2000 mAh high capacity Li-ion battery pack. In addition, the KG-UV9D features Full Duplex operation to transmit at the same time you are receiving to the opposite band. A new color LCD screen displays everything you need to know and includes the IP55 water resistant rating. The KG-UV9D uses a new model Li-ion battery and drop in charger which is not interchangeable with previous Wouxun models. All Wouxun speaker mics, lapel mics and earpieces (KG-UV8D, KG-UV3D, KG-UV6X) are compatible with the new KG-UV9D.

- Dual-band VHF / UHF handheld.
- Color LCD display.
- 999 channels.
- True dual receive (V+V, U+U, V+U).
- AM aircraft receive (108-136 MHz).
- 8 character alpha display.
- Wide receive: 88-174 / 350-512 MHz.
- Built-in flashlight.
- Built-in CTCSS & DCS.
- Includes 2000 mAh Li-ion battery and desk charger.

Wouxun Accessories

Model	Description	HRO Price
WXHCB	1701 Li-ion Battery for (3D,6X,3X)	$28.99
WXAAB	AA Battery Pack for (3D,6X,3X)	$11.99
WXUSB	USB Programming Cable 3D,6X,3X,8D,9D)	$16.99
WXSPK	Compact Speaker Mic 3D,6X,3X,8D,9D)	$16.99
WXRSK	Heavy Duty Speaker Mic (3D,6X,3X,8D,9D	$39.99
WXGHK	G-Hook Lapel Mic for (3D,6X,3X,8D,9D)	$18.99
WXAET	Covert Acoustic Ear Mic (3D,6X,3X,8D,9D)	$19.99
CSC-590	Heavy-Duty Nylon Case/clear front(3D,6X,3X)	$26.95
CSC-500	Heavy-Duty Nylon Case (3D,6X,3X, DB-16)	$26.95
WXCAR	12 VDC Car Charger	$9.99
WXBTE	Battery Eliminator w/Cig Lighter (3D,6X,3X)	$14.99
WXRC6	6-Unit Multi Charger (3D,6X,3X)	$149.99
WXGAT-RV	High Gain 2m/440 Antenna (Rev SMA)	$22.99
WXGAT-ST	High Gain 2m/440 Antenna (Std SMA)	$22.99
WXSTB-RV	Dual band Stubby Antenna (Rev SMA)	$19.99
WXSTB-S155	Dual band Stubby Antenna (Std SMA)	$18.99
WXUHF	Reverse SMA to UHF (SO-239)	$6.99
WXBNC	Reverse SMA to BNC	$6.99
WXDSC	Dual Slot Charger w/ 2nd Battery Slot (6X,3D)	$24.99
RPS-KGUV8-USB	RT Systems Software & Cable (8D)	$49.95
RPS-KGUV9-USB	RT Systems Software for Model "9D"	$49.95
RPS-KGUV6-USB	RT Systems Software & Cable (6x)	$49.95
RPS-KGUV23-USB	RT Systems Software & Cable (3D)	$49.95
BAT-9	Extra 2000 mAh Li-ion Battery (9D)	$25.99
BTE-9	Battery Eliminator for model (9D)	$15.99



IC-7600
The Flagship's Lineage

The IC-7600 pushes performance to the pinnacle with the latest DSP technologies developed for the IC-7800 / 7700. More than 45 years of analog circuit expertise gives the IC-7600 the performance advantage. Supplied with DC power cable, HM-36 hand mic, spare fuses, MB-121 handle, and CW key plug.

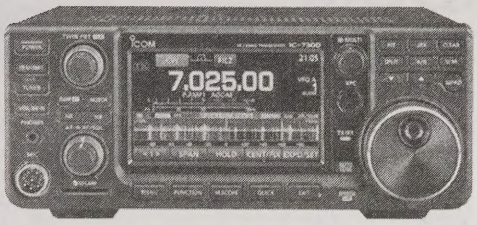
- Dual DSP units for transmitter / receiver and high resolution real time spectrum scope.
- 2-100 W output with 1-30 W on AM.
- Built-in high speed auto antenna tuner.
- Receives 0.030 - 60 MHz.
- Transmits on amateur HF frequencies plus 6 meters.
- Three built-in 1st IF (roofing) filters: 3, 6, and 15 kHz.
- 5.8 inch WQVGA (400 x 240 pixel) TFT display with LED backlighting.
- Front & rear USB connectors.
- Built-in PSK and RTTY operation with a USB keyboard. A PC is not required.
- 104 dB dynamic range and +30 dBm third-order intercept point.
- Double conversion superheterodyne receiver greatly improves inband IMD.
- Dual AGC loops (one analog, one digital) controlled by the DSP.
- Adjustable digital IF filter.
- 99 memories and 2 scan edges.
- Noise reduction / noise blanker.
- Digital notch filter.
- Digital twin PBT to shift and narrow the IF passband.
- Dual watch for simultaneous reception of two signals in the same band.
- High stability TCXO unit with ±0.5 ppm frequency stability.
- Digital voice memory to record and replay incoming signals.
- 4-channel transmit memory and 20-channel receive memory.
- Multi-function meter.
- RF speech compressor.
- Triple band stacking register.
- Built-in memory keyer.
- Microphone equalizer and adjustable transmit bandwidth.
- Two TX / RX antenna connectors with automatic antenna selector.
- Built-in 3-step attenuator and two types of RX preamps.
- 50 CTCSS tone encoder and VOX.
- RIT & delta TX variable up to ±9.999 kHz.
- IF-DSP.
- USB audio / control.



IC-7700
Contester's Rig

The Contester's rig has two 32-bit floating point DSP units – one for the transmitter / receiver and the other for the spectrum scope. There is a +40 dBm 3rd order intercept point and ultra wide dynamic range. Two IF stages and Icom's image rejection technology allow very weak signals and very strong signals to be heard without distortion.

- Spectrum waterfall display.
- Real time spectrum scope.
- PC mouse operates spectrum scope.
- Audio scope function.
- 7" wide color TFT LCD.
- Waveform outline in spectrum scope (ON / OFF).
- Remote control operation for RS-BA1.
- TX delay sets the transmission timing to control an attached external linear amp.
- Added RIT and ∂TX commands for CI-V remote control.
- Internal distortion reduction.
- Improved blocking.
- Icom's DIGI-SEL.
- Less internal phase noise.
- Multiple AGC loops; full control.
- Digital IF filters/ twin passband tuning.
- Three roofing filters.
- Digital manual notch filter.
- Adjustable noise blanker.
- Ultra high stability OCXO unit.
- CW / RTTY / PSK31 operation.
- 200 W power out at full duty cycle.
- 50 MHz band preamp & mixer.
- Microphone equalizer.
- RF speech compressor.
- Digital voice recorder.
- Increase APF volume level.
- Voice TX function transmits the recorded audio repeatedly.
- CF memory card.
- 4 antenna connectors.
- Double conversion super-heterodyne.



IC-7300
The Innovative HF Transceiver

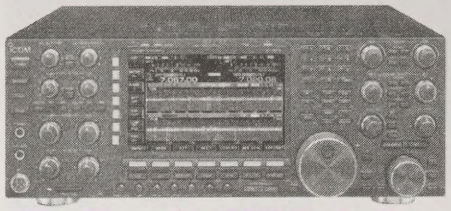
The IC-7300 HF tranceiver brings new and improved features that have not been included in previous rigs, like the RF Direct Sampling system that is used in many software defined radios.The real-time spectrum scope with waterfall function provides top-level performance in resolution, sweep speed and dynamic range.

- TFT LCD that can be used as a touch screen. Using the software keypad of the touch screen, you can set various functions and edit memory contents.
- 100 W output HF / 50 MHz bands.
- High-speed automatic antenna tuner is built into a compact chassis.
- Multi-dial knob for smooth operation. Push the multi-dial knob and menu items are shown. Select an item with a touch of the screen and adjust levels by turning the multi-dial knob.
- Class leading phase noise characteristics. These overcome cost and performance limitations of the superheterodyne system. The IC-7300's phase noise characteristics are improved about 15 dB (at 1 kHz frequency offset) when compared to other transceivers.
- Optimum sound quality is achieved with a new speaker unit that is allocated sufficient space in the aluminum die-cast chassis.
- Voice memory function.
- Memory keyer functions for CW and RTTY.
- RTTY decode log function.
- Screen capture.
- SD card slot.
- USB for CI-V and audio input / output.
- Large cooling fan system.
- Multi-function meter.
- 101 memory channels (99 regular and 2 scan edge channels).
- Multiple CW functions
- Digital noise reduction.
- SSB, CW, RTTY, AM and FM modes.
- Transmits on amateur HF frequencies plus 6 meters.

Extended Warranties Available for Icom.
See Page 41.

Free UPS Brown Shipping on Most Orders Over $100.

ICOM HF BASE RIGS MOBILES



HF Plus 6m

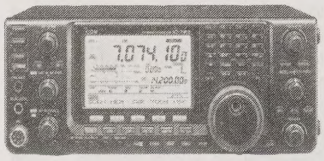
IC-7851

The Pinnacle of HF Perfection

The IC-7851 perfects HF operation with new features such as a 1.2 kHz optimized roofing filter to improve in-band adjacent signal performance. The new design outperforms competitors' similar models in the 2 to 10 kHz separation tests.

Unlike HF rigs using a conventional voltage controlled oscillator for the 1st LO, the IC-7851 uses a direct digital synthesizer (DDS) with a voltage controlled SAW oscillator (VCSO). This new 1st LO design sets a benchmark for phase noise with -150 dBc / Hz at 10 kHz offset (and -140 dBc / Hz at 1 kHz offset).

The IC-7851 also has the spectrum waterfall function found in the IC-7700. The high-resolution waterfall screen shows the changing amplitude of frequencies over time. An enhanced spectrum scope promotes fast and accurate scan and can be operated with PC mouse via USB port. Dual scope function shows simultaneous activity in both bands to help search a sub-band while maintaining a run frequency on the main band.



HF Plus 6 m All-Mode

IC-7410

- Faster DSP and AD / DA converter for higher dynamic range and S / N ratio.
- Double conversion superheterodyne.
- +30 dBm 3rd order intercept point.
- 3 first IF filters. FL-431 and FL-430 optional.
- Large, multi-function LCD.
- USB connector for PC control.
- RTTY demodulator and decoder.
- Simple band scope.
- Many DSP features.
- Ample CW functions.
- High frequency stability.
- Large heat sink.
- USB Audio/Control.
- IF-DSP.



All-Band HF

IC-718

- Receives 0.03 ~ 29.995 MHz.
- 101 memory channels.
- Modes USB, LSB, CW, RTTY, AM.
- IF shift interference rejection.
- Output power: SSB / CW / RTTY: 5 ~ 100 W variable, AM: 2 ~ 40 W variable.
- Transmits amateur HF except 60 m.
- AF DSP built-in.
- Built-in electronic keyer.
- VOX operation, mike compressor, RF gain control.
- 10-key pad for direct operating frequency entering and memory channel selection.

See Page 41 re: Warranties.

Dual Band Mobile

IC-2730A
Practical Dual Bander
with Optional Bluetooth Headset



This mobile is a high performance radio with classic 2 m / 70 cm analog operation.

- Wideband receiver 118-174 / 375-550 MHz.
- Large backlit LCD screen.
- V/V & U/U simultaneous receive.
- Hands-free capable with optional UT-133.
- Optional VS-3 Bluetooth® headset.
- Cross band repeater capability.
- CS-2730 free download PC programming software.
- 50 Watts of output on VHF and UHF.
- Built-in 50 CTCSS and 104 DTCS tones with split tone function.
- Controller attachment to the main unit (with optional MBA-4).
- 1052 memory channels including 50 scan edges and 2 call.
- Weather channel receive with weather alert (USA version only).
- Squelch delay and squelch attenuator.
- HM-207 remote control mic is standard.
- 16 DTMF autodial memories.
- CI-V remote control capability (through the optional OPC-478UC).

Single Band

2 m Mobile
IC-2300H



The IC-2300 2m mobile transceiver boasts a powerful 65 W output, simple-to-use user interface, and built-in CTCSS / DTCS encoder / decoder.

- Simple operation with a large tuning dial.
- 207 alphanumeric memories.
- Dynamic memory scan allows scanning of selected memory banks.
- Pocket beep function for incoming calls.
- DTMF autodial.
- Select yellow, green or amber display.
- PC to XCVR and XCVR to XCVR cloning (optional software and cable required).
- Automatic repeater function and weather channel (USA only).
- Power supply voltage display, time-out timer, repeater lock out, auto power off.
- Selectable squelch delay and squelch attenuator.
- Wide / narrow channel setting.
- Passed MIL-STD 810G specifications.

Icom HF Specifications

Model	Receive Freq Range	Power Supply	Current Drain Xmit	Power Output † AM	FM	SSB	CW	FSK	Mike Z ohms	Receive Circuitry	Sensitivity 1.8-30 MHz	RIT / XIT Range	Notch	Audio
IC-7100	30 kHz - 199.9999 MHz, 400 - 470 MHz	13.8 VDC	22A	1-40W	##	##	##	##	600	Triple Conversion	<.18µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W
IC-7200	30 kHz - 60 MHz	13.8 VDC	22A	1-40W		100 W	100 W	100 W	600	Triple Conversion	<.16µv at 10 dB	±9.9 kHz	Manual	>2.0 W
IC-7410	30 kHz - 60 MHz	13.8 VDC	23A	2-27W	100	100	100		600	Double Conversion	<.16µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W
IC-7600	30 kHz - 60 MHz	13.8 VDC	23A	1-30W	2-100	2-100	2-100	2-100	600	Double Conversion	<.15µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W
IC-7700	30 kHz - 60 MHz	85-265VAC	5.6A	50W†	200†	200†	200†	200†	600	Double Conversion	<.16µv at 10 dB	±9.9 kHz	Man + auto	>2.6 W
IC-7851	30 kHz - 60 MHz	85-265VAC	5.6A	50W†	200†	200†	200†	200†	600	Double Conversion	<.16µv at 10 dB	±9.9 kHz	Man + auto	>2.0 W

† Output is continuously adjustable from 5 to full power. * 50 W on 2 meters, 20 W 70cm. ## 2-100 W HF / 50 MHz, 2-50 W VHF, 2-35 W UHF.

Dual Band Analog HT



IC-T70A-HD

The IC-T70A offers impressive audio output volume, long-lasting power, plenty of memory channels, rugged construction, and analog features:

- TX: 2 m / 70 cm bands. RX: 136-174, 400-479 MHz (US version).
- Power out selectable – 5 W / 2.5 W / 0.5 W.
- 700 mW loud audio.
- Long lasting battery life. Up to 13.5 hours with supplied BP-265.
- External DC power jack.
- 302 alphanumeric memories including 50 band edges and 2 call channels. Maximum of 26 memory banks for scanning.
- Built-in CTCSS / DTCS.
- Internal VOX, WX channel, direct keypad frequency entry, 16 DTMF autodial memories.
- IP54 / MIL-STD-810 rugged construction.

IC-T70A-HD Accessories

Model	Description	HRO Price
Cloning		
CS-T70	Cloning software	$39.95
OPC-474	Radio to radio cloning cable	$17.95
OPC-478UC	PC to radio programming cable, USB	$60.95
Headphone / Microphone Accessories		
HS-94	Ear-hook headset w/flexible boom microphone	$22.95
HS-95	Behind-the-head headset w/flexible boom microphone	$144.95
HS-97	Throat microphone	$35.95
HM-131	Spkr Mic w/earphone jack & clip	$37.95
HM-153LS	Durable earphone microphone	$135.95
SP-27	Acoustic tube earphone	$35.95
Other Accessories		
AD-92SMA	BNC antenna adapter	$18.95
OPC-2006	Cable to use with HS-94, -95, or-97	$22.95
OPC-254L	DC Power Cable	$16.95
OPC-515L	DC Power Cable (BC191, BC192, BC193)	$20.95
CP-12L	Cigarette lighter cable w/ noise filter	$34.95
FA-S270C	Antenna (same as supplied)	$33.95
MB-124	Alligator Belt Clip	$10.95

2 m Analog HT

IC-V80 HD or IC-V80 Sport
Basic Rugged 2 m with Powerful Audio

Available either as an economical 2 m HT with alkaline battery case (BP-263) or with BP-265 battery and drop-in charger.



Features include:

- IP54 / MIL STD-810 rugged construction.
- 5.5 Watts out.
- Up to 19 hours operation with optional BP-265.
- 207 memory channels.
- Built-in CTCSS / DCS.
- Internal VOX function.
- WX channel.

Extended Warranties Available.

Icom Handheld Accessories		2 m	DUAL-BAND		70 cm
		V80	ID-51A	T70 HD	ID-31A
Battery Packs	BP-264	♦		♦	
	BP-265	♦		♦	
	BP-271		♦		♦
	BP-272		♦		♦
Battery Cases	BP-263	♦		♦	
	BP-273		♦		♦
Carrying Cases	LC-174			♦	
	LC-178				♦
	LC-179		♦		
Cables	CP-12L		♦	♦	♦
	CP-17L	♦			
	CP-19R		♦	♦	♦
	OPC-254L		♦	♦	♦
	OPC-474	♦		♦	
	OPC-478/478U	♦		♦	
	OPC-515L	♦		♦	
	OPC-2004	♦			
	OPC-2006LS		♦		♦
	OPC-2144		♦		♦
Speaker Mics	HM-75LS		♦		♦
	HM-131			♦	
	HM-153			♦	
	HM-153L	♦		♦	♦
	HM-153LS		♦	♦	♦
	HM-158L-LG	♦			
	HM-159L-LG	♦			
	HM-166LS		♦		♦
	HM-186LS		♦		♦
Headsets	HS-94	♦	♦	♦	♦
	HS-95	♦	♦	♦	♦
	HS-97	♦	♦	♦	♦

Handheld Batteries & Chargers

"AA" Alkaline Packs

BP-204, BP-208N, BP-263, BP-273

\# Requires BC-147S AC adapter.
* Requires BC-123S AC adapter.

Model	Volts	Rating mAh	Trickle Charger	Rapid Charger
BP-206	3.6	1650	BC-149A-02	BC-156-02
BP-210N	7.2	1650	BC-146-01#	BC-144N
BP-217	7.4	1500	BC-167SA	BC-139-02
BP-222N	7.2	600	BC-146.01#	BC-144N
BP-227	7.2	1700	BC-146-01#	BC-119N-51
BP-256	7.4	1620	BC-167SA	BC-177-02
BP-264	7.2	1400	BC-192-12#	BC-191-12*
BP-265	7.4	1150		BC-193-12*
BP-271	7.4	1150	BC-167SA	BC-202-02
BP-272	7.4	1880	BC-167SA	BC-202-02

Icom Handhelds

Model	Frequency	Power Supply	Power Out Transmit*	Current Transmit	Drain Receive	Sensitivity at 12 dB	Height in(cm)	Width in(cm)	Depth in(cm)	Weight oz(g)	HRO Price
IC-T70HD	2m / 70 cm	7.2 VDC	5.0/2.5/.5 W	2.1 A	<450 mA	<.18μV	4.8(11.1)	2.3(5.8)	1.2(3.0)	13.4(380)	CALL
IC-V80	2m	7.2 VDC	5.5/2.0/.5 W	1.4 A	310 mA	<.14μV	4.4(11.2)	2.3(5.8)	1.2(3.0)	12.7(360)	CALL
ID-51APlus	2m / 70 cm	7.4 VDC	5.0 W	2.5 A	<450 mA	<.18μV	4.1 (10.5)	2.28(5.8)	1.0(2.6)	9.0(255)	CALL

* Power with standard battery pack. † Frequency coverage 138-174 (receive only outside amateur bands), 440-450 MHz.
\# Extended receive 118-174 MHz and 400-470 MHz. % 0.495-999.99 cellular blocked.

HF and More With D-Star

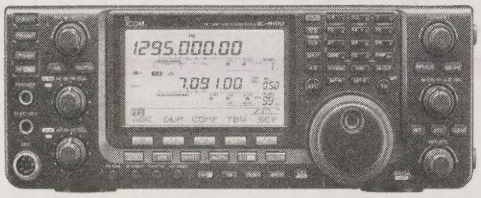
HF Plus 6 m / VHF / UHF with D-STAR

IC-7100



Multi-Band All-Mode Operations

- Intuitive touch screen interface.
- Easy-to-see, easy-to-use slant top controller.
- Built-in high effeciency oval speaker on the controller.
- D-STAR DV mode digital voice and low speed data communications.
- 505 memory channels.
- SWR graphic display.
- Optional MBF-1 mounting base.
- Built-in SD card slot for voice storage and data cloning.
- Easy vehicle mounting (optional MBF-1).
- IF DSP controlled digital features. The 32-bit floating point DSP supports many digital processing features such as digital IF filter, twin PBT and manual notch filters.
- Remote Control Software (optional RS-BA1 IP).
- Built-in RTTY functions.
- CW full break-in.
- CW auto tuning.
- USB Audio/Control.
- IF-DSP.



VHF / UHF Satellite Plus HF / 6 m Plus D-STAR DV Mode

IC-9100

With built-in satellite mode operation, the IC-9100 covers HF / 50 MHz, 144 / 430 (440) MHz, and 1200 MHz frequencies. The optional UX-9100 is required for 1200 MHz. The rig has 100 Watts output on HF / 50 / 144 MHz; 75 Watts on 430 (440) MHz; 10 Watts on 1200 MHz.

- Double superheterodyne receiver with image rejection mixer.
- SSB, CW, RTTY, AM, and (with the optional D-STAR unit) DV mode.
- 32-bit floating point DSP and 24-bit AD / DA converter.
- Optional 3 kHz (FL-431) and 6 kHz (FL-430) 1st IF (roofing) filters.
- USB Audio/Control. IF-DSP.

Extended Warranties Available for Icom Radios.

D-Star Mobiles

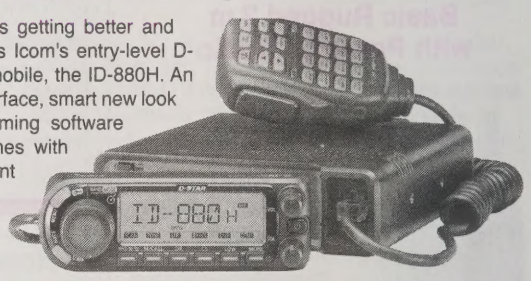
ID-5100A
Dual Band D-STAR with Touch Screen



This ID-5100A dual band D-STAR mobile has a large, responsive touch screen LCD and Bluetooth connectivity.

- Wideband receive (118-137 MHz (AM), 137-174 / 375-550 MHz only).
- Antenna RX diversity (second antenna connector).
- DTMF decode / DV / FM repeater list.
- Optional UT-133 Bluetooth unit enables audio accessory connection and Android terminal connection (CI-V via Bluetooth SPP profile).
- Optional VS-3 Bluetooth pendant earpiece mic.
- 1,000 memory channels.
- RS-MS1A Android application: a free-to-use download.
- Independent VHF and UHF band units (VV / UU capable) for 50 W output.
- D-Plus reflector usability (select "reflector" in TO field).
- DV dual watch for simultaneously waiting in two DV voice streams (decodes one only).
- Home button (same as ID-51 feature).
- Built-in GPS engine.
- HM-207 control microphone is supplied as standard.

ID-880H
Dual Band D-STAR with Magnet Mount Front Panel



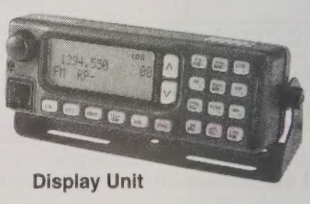
D-STAR just keeps getting better and better and so does Icom's entry-level D-STAR dual band mobile, the ID-880H. An improved user interface, smart new look and free programming software are included. Comes with a magnet mount front panel like the IC-2820H. There are lots of signaling options too.

- Transmit 2 m / 70 cm.
- Receive 118 - 999.99 MHz (cellular blocked).
- TX Modes FM / DV.
- RX Modes AM / FM / DV.
- DTMF codes.
- 1052 Memory channels
- Output power 50 W on UHF and VHF.
- 26 memory banks.
- Free programming software.
- V/U or U/V switchable operation.



ID-1
Single Band 1.2 GHz also with Analog

While the ID-1 transceiver is a vital part of a D-STAR system, you won't have to wait for a new repeater to be set up in your area. This rugged little rig operates with current analog 1.2 GHz repeaters, plus simplex digital operation with another ID-1. Its operating frequency range is 1240-1300 MHz with FM and GMSK (Digital) modulation formats. The ID-1 includes alphanumeric memory channels, CTCSS encode / decode and scanning, PLUS full PC control via the USB port (a black box 1.2 GHz radio!). Now for the fun part . . . the ID-1 supports a 10 BASE-T ethernet cable for the 128K data operation! Explore the benefits of wireless high-speed integrated digital connections!



Display Unit

D-Star Dual-Band Handheld

2 m / 70 cm Handheld

New Colors



ID-51A Plus

This compact HT has 5 W output power, VHF / UHF dual band, D-STAR, and integrated GPS receiver.

- Transmit 144-148 and 430-450 MHz.
- Receive A: 137-174; B: 108-174, 380-479 MHz.
- Broadcast receive 0.52-1.710, 88-108 MHz.
- Listen to FM, AM, and shortwave while using the dual watch function for ham bands.
- MicroSD card slot for voice and log data storage and data cloning.
- Voice memory records incoming and outgoing calls. Can be used as a voice recorder.
- Automatic position reply function transmits your current position when receiving a call.
- CSV formatted com log.
- 1304 memory channels.
- Send and receive pictures.
- Independent AM / FM receiver
- D-STAR DV mode.
- V/V, U/U, V/U dual watch receives two bands simultaneously including the same band.
- Speech function gives frequency, mode, and call sign.
- Integrated GPS receiver, GPS log function.
- IPX7 submersible.
- CTCSS and DTCS.
- GPS position data can be sent simultaneously. Altitude data added to GPS memories.
- Repeater search function searches up to 20 nearby.
- Improved data transfer in DV mode.
- RS-MS1A Android™ application (optional OPC-2350LU cable required).
- Additional dplus reflector link commands.
- DV and FM repeater search function.
- Enhanced D-PRS functions: receiving only base / object / item / weather formats.
- Send CI-V commands through DATA connector.
- Callsign, repeater list and GPS memory import and export in the CSV format.
- CI-V commands added such as GPS TX mode, DV data TX, and GPS ON/OFF settings.
- PC programmable; CS-51 cloning software supplied.
- Full dot-matrix display and directional keypad.
- Choose classic Black, Sunset Orange, Passion Pink, Ultraviolet, or Lime Yellow. A matching color carrying case and LCD protection film are included. Only 5000 colorful units available worldwide.

Extended Warranties Available for Icom. See Page 41.

D-Star Audio

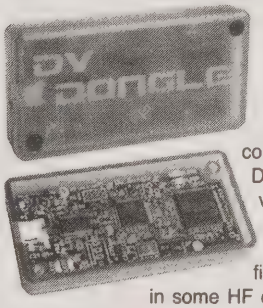
Works with PCs and Macs

INET Labs



DV3K Dongle

With a DV3K Dongle connected to a PC or Mac via a USB port and used with DVTool software, an amateur radio operator can connect to the international D-Star gateway network and receive/transmit just like a D-Star radio user. The DVTool application used with the DV3K Dongle may be installed and run on Microsoft Windows XP/Vista/7/8/10, Mac OS X, or many flavors of Linux. **HRO Price $149.95**



DV Dongle

The DV Dongle connects to your PC or Apple Mac via a USB port and provides encoding and decoding of compressed audio using the DVSI AMBE2000 full duplex vocoder DSP chip. AMBE technology is used in all D-Star radios to provide efficient voice transmissions and in some HF digital protocols by vendors like AOR. The DVTool application used with the DV Dongle may be installed and run on Microsoft XP/Vista, Mac OS Leopard or many flavors of Linux. The unit includes a USB A to mini-N cable. PC and Mac users must download an FTDI USB device driver. **HRO Price $199.95**

DV Access Point Dongle

DV-AP 440 now available for 440 MHz



The DV Access Point Dongle (DVAP) provides a way to connect to the international D-Star network. The DVAP is used with a PC or Mac and an internet connection. You can walk away from the computer and transmit / receive D-Star voice and data using a 2 meter D-Star radio. It uses the computer's USB port and a PC running Windows XP / Vista / 7 / Linux or an Intel Mac running OS X. The DVAP is a GMSK modem with a 2 meter or 70 cm transceiver built in. The DVAP tunes between 144-148 MHz for IARU regions 2 and 3 and 144-146 for region 1.**HRO Price $239.95**
DV-AP 440 HRO Price $269.95

Icom VHF Specifications

Model	Freq Range	Mode	Power Supply	Current Drain Xmit	Current Drain Rec	Power Out Watts	Ant Z ohms	Mike Z ohms	Sens	Audio Power	Built-in AC Supply
IC-2300H	2m †	FM	13.8 VDC	11 A	1.5 A	65	50	600	<.18 µV	4.5 W	no
IC-2730A	2m / 70 cm	FM	13.8 VDC	13 A	1.8 A	50	50	600	<.32 µV	>2.0 W	no
ID-5100A	2m / 70 cm	FM	13.8 VDC	13 A	1.8 A	50	50	600	<.15 µV	>2.0 W	no
ID-880H	2m / 70 cm%	FM	13.8 VDC	11.5 A	1.2 A	50 / 50	50	600	<.16 µV	>2.4 W	no

† Extended receiver coverage 118-174 MHz (airband included), 440-450 MHz %extended receiver range. See text with radio.



IC-R6-Sport Receiver

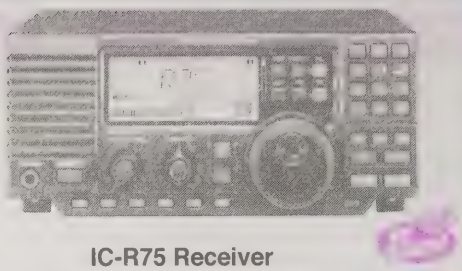
The IC-R6 is a Signal Search Machine. Covering 100 kHz to 1309.995 MHz (cellular blocked and receives analog TV only), it can search 100 channels per second. The receiver is energy-efficient, designed to provide up to 15 hours of listening on a single charge.

With 1300 alphanumeric memory channels, 50 scan edges, and 200 auto-write memories, there are many scanning opportunities. The bank link feature allows connecting any of the 22 memory banks. The Voice Squelch Control opens the squelch only when a modulated signal is detected.

IC-R6 Accessories

Model	Description	HRO Price
Cloning		
CS-R6	Cloning Software	$44.95
OPC-478	Cloning Cable (RS-232C)	$44.95
OPC-474	Radio to Radio Cloning Cable	$17.95
OPC-478UC	USB PC to Radio Programming Cable	$60.95
Headphone Accessories		
SP-13	Earphone	$4.95
SP-27	Tube Earphone	$35.95
Other Accessories		
AD-92SMA	BNC antenna adapter	$18.95
BC-196SA	AC Adapter (same as supplied)	$49.95
BC-194	Charger Stand	$29.95
CP-18A	Cigarette Lighter Cable	$33.95
LC-146A	Carrying Case	$25.95
FA-S270C	Antenna (same as supplied)	$33.95
CT-17	CI-V Level Converter	$135.95

Call for Quotes.



IC-R75 Receiver

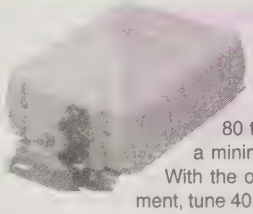
This receiver covers the HF bands plus 6 meters (0.03 to 60 MHz). It features twin PBT, built-in DSP capability, and a front mounted speaker. Modes include USB/LSB, CW, RTTY, AM/S-AM and FM. A complete line of filters is available. Operates at 13.8 VDC ± 15% at 2.0 A. Features 101 memories (99 regular and 2 scan edges). Program scan, memory scan and priority scan. Direct frequency input with numeric keypad. Two-level pre-amp, noise blanker and selectable AGC.



IC-R9500
Professional Communications Receiver

- +40 dBm IP3 / 109 dB wide dynamic range.
- Measuring class accuracy. Dual IF filter.
- Superior BPF unit.
- Dual DSP. 10 VFOs.
- 7" wide color TFT LCD.
- High resolution spectrum scope. 1000 memories.
- 2 channel noise blanker.
- 5 roofing filters. 2 point manual notch filter.
- 0.005-3335 MHz. Cellular blocked.
- All bands: SSB, CW, FSK, AM. FM, WFM on some.
- Digital voice recorder.
- 4 antenna connectors

HF Automatic Antenna Tuner



AH-4

The AH-4 auto-tuner covers all amateur bands from 80 to 6 meters when used with a minimum 23' long wire antenna. With the optional AH-2b antenna element, tune 40 through 6 meters for mobile operation. It has automatic band changes and tunes usually in less than 2.5 seconds. The 45 memories store SWR minimum and tuning combinations. Requires only 300 mW to tune and handles up to 120 Watts. **HRO Price $279.95**

Software

RS-BA1
IP Remote Control for HF Transceivers

Remotely control Icom transceivers through an IP network with the RS-BA1. The RS-BA1 allows you to use the radio installed in another room using your home network or a remote location over the Internet. The low voice latency caused by the RS-BA1 provides the same operational experience as using an actual radio. Most functions and modes of your transceiver can be controlled.

The RS-BA1 has two component applications: System Configuration to set up the IP address and other settings, and Remote Control allows you to control the radio. The display on the RS-BA1 is similar to the radio's front panel. Supports the IC-7200, 7410, 7600, or 9100 with USB connection to a PC. Also the IC7800 or 7700 connected to a PC with an RS-232C cable plus S/P DIF or ACC cable.

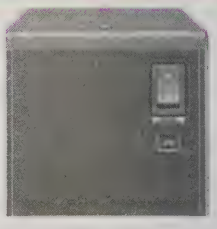
Icom Cloning

Icom cloning software for Windows allows you to preprogram memory channels with operating frequencies, set tones, set power levels, set squelch levels, set up auto-dial DTMF frequencies, and exchange operating frequencies. Call for price quotes.

- **CS-R6** without cable (R6)..
- **CS-V80** without cable (V80A).
- **CS-2300H** without cable (2300H).
- **CS-T70A** without cable (T70A)*.
- **CS-7100** without cable (IC-7100)*.
- **CS-9100** without cable (IC-9100)*.
- **RS-92** for IC-92AD.

* OPC-478U USB cable optional

Power Supply

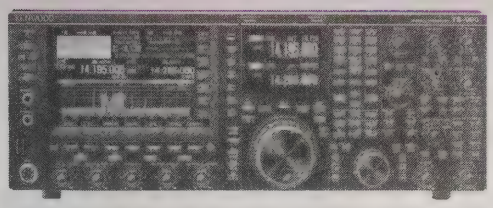


PS-126

Matching supply for IC-7600.
HRO Price $CALL

HRO Offers Extended Warranties on Icom Radios. See Page 41.

KENWOOD

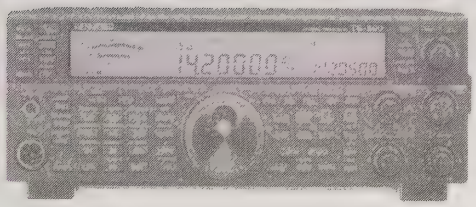


TS-990S $CALL HRO Price

The TS-990S raises the bar on HF performance and DX operating ease in more ways than one. Dual display and dual watch gives you the edge in DX contesting.

- Frequency range HF + 50 MHz.
- Output pwr: 5-200 W.
- Built-in antenna tuner.
- Mode: SSB, CW, FSK, PSK, FM, AM.
- Built-in switching power supply.
- Comm ports: USB A / B and LAN.
- Dual TFT display and dual receiver. Main display monitors target signal vicinity and sub display monitors actual target signal.
- Down conversion for all Amateur Radio Bands (main receiver).
- IP3 + 40 dBm mixer performance.
- Narrow-band high-IP roofing filters.
- TCXO ±0.1 ppm for high stability receive.
- Dedicated triple DSP for main & sub-receivers plus band scope.
- Remote PC operation.
- Data mode facilitates switching between external terminals.
- Advanced AGC – digital and analog.
- 2-step split frequency configuration for quick setup.
- Maximum of 120 memory channels. Dual channel memory allows access while receiving two frequencies simultaneously.
- Memory accessible during split/sub receiver operation.
- Two USB sockets on front panel.
- Firmware updates via USB stick or cable.
- VCO division-type first oscillator divides high frequencies to ensure high C/N.
- Dedicated triple 32-bit floating point DSPs for main & sub receivers plus band scope, audio scope and S-meter.
- Cooling system capable of providing ample airflow to each unit to ensure a stable 200 W output.

Peerless Performance



TS-590SG

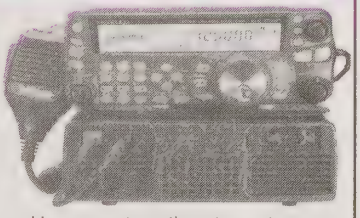
HF / 50 MHz All-Mode Transceiver

$CALL – HRO Price

The TS-590SG is an upgrade to the TS-590S and features a narrow-band roofing filter to significantly reduce interference from unwanted signals. The resulting excellent RX perfomance reveals signals that would be hidden to lesser rigs. With IF AGC based on advanced DSP technology, Kenwood has essentially redefined HF performance.

- Has sharp 500 Hz / 2.7 kHz roofing filter and dedicated first mixer.
- Built-in electronic memory keyer.
- Programmable keys, 110 memory channels, memory scroll function, multiple scan functions.
- Advanced AGC through digital signal processing from the IF stage onward, digital IF filters, detection and demodulation, noise reduction and IF notch IF auto notch, IF AGC, AF digital signal processing, two types of noise reduction, and TX audio shaping.
- Direct frequency entry, USB connectivity for PC control, remote control using a computer, optional voice guide and storage unit.
- Morse code decoder function.
- Transmitter features: 100 Watt heavy-duty design, built-in automatic antenna tuner, optional TCXO, drive output, speech processor (SSB / AM / FM), adjustable TX filter (SSB / AM), TX equalizer, TX monitor; VOX, adjustable TX power output and CAR level.
- Split function enabling quick setting.

Compact, Portable HF Mobile Transceiver



TS-480HX / TS-480SAT

$CALL – HRO Price

With its separate control panel, the TS-480 is perfect for base station use, while ample receive audio makes it outstanding for mobile applications. Using 13.8 V for power, the TS-480HX delivers 200 W; the TS-480SAT delivers 100 W and has an automatic antenna tuner.

- 500 kHz–60 MHz general coverage receiver.
- Separate LCD control panel with speaker. It can be positioned up to 4 meters from the main unit.
- PC-based control.
- TX / RX AF DSP. 16-bit AF digital signal processing offers noise reduction, TX / RX equalizer and AF filters.
- Optional IF filters available.
- TX covers all amateur bands 1.8 MHz to 60 MHz plus 5 MHz band for the US.
- Quad-mixer provides RX dynamic range in the TS-950 class.
- PSK-31 compatibility.
- Packet cluster tune with optional TM-D710A with user supplied cables.
- Additional front panel available.

Kenwood HF Specifications

		Power Supply		Current Drain		Power										
Model	Receiver Frequency Range	50/60 Hz AC	DC	Xmit	Rec	AM	FM	SSB	CW	FSK	FSK Shift	Mike Z ohms	Receive Circuitry	Sensitivity	RIT / XIT	Notch Filter	Audio
TS-2000*	0.5-30 MHz, 50-54 MHz, 144-138 MHz, 430-450 MHz, 1240-1300 MHz¢		13.8 V	20.5 A	1.5 A	100	100	100	100	100	100	600	Quadruple Conversion	<.11µV SSB,CW,FSK (varies with band and mode)	±20 kHz	> 30 dB	1.5 W
TS-590SG	0.13 MHz - 60 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100	100		600	#	< .2 µV	±9.99 kHz	> 70 dB	1.5 W
TS-480SAT†	500 kHz - 60 MHz		13.8 V	20.5 A	1.5 A	25	100	100	100	100		600	#	< .2 µV	±9.99 kHz	–	2 W
TS-480HX	500 kHz - 60 MHz		13.8 V	41.0 A	1.5 A	50	200	200	200	200		600	#	< .2 µV	±9.99 kHz	–	2 W
TS-990S	0.13 -30 MHz 50-54 MHz	yes		720VAC	120VAC	50	200	200	200	200		600	Double Superheterodyne	< .2 µV	±9.99 kHz	> 70 dB	1.5 W

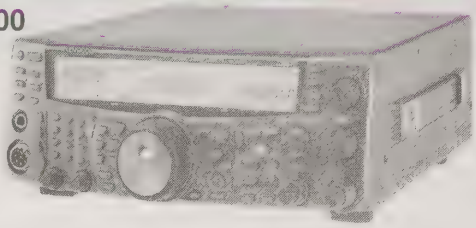
Double Conversion SSB, CW, AM; Triple FM (1)170, 200, 425, 850 Hz
†Output 6 M 480 HX - 100 W / 50 W AM 480 AT 50 W / 25 W AM
*Output 440 MHz 50 W and 1000 MHz 10 W
¢Only on model TS-2000X

KENWOOD

MOBILES

All-Mode / All-Band

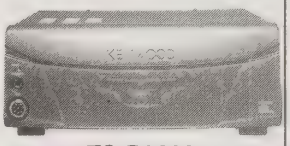
TS-2000



$CALL
– HRO Price

The TS-2000 is a marvel of electronic engineering. The TS-B2000 is a "Black Box" version for computer control or vehicle use with the optional RC-2000 mobile controller. ARCP-2000 radio control software is supplied with the TS-B2000.

- All mode multibander: HF (not 60 m) / 50 / 144 / 440. 1200 MHz operation is also available on the TS-2000X.
- 500 kHz to 1300 MHz wide band receiver with dual-channel receive. Has satellite mode plus a sub 144 / 440 MHz FM / AM receiver so two frequencies can be received simultaneously.
- Built-in TCXO with professional performance ±0.5 ppm (-10 to 50 degrees C).



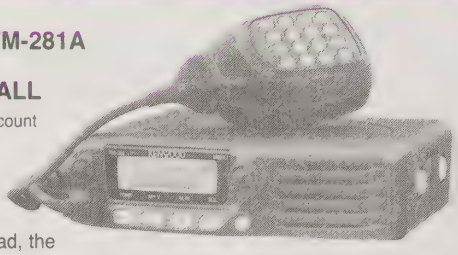
TS-B2000

- The IF digital signal processing provides for DSP detection, digital filtering, IF auto notch and IF AGC.
- The transmitter provides 100 Watts on HF / 50 / 144 MHz bands (AM 25 Watts). 50 (AM 12.5) Watts on 440 MHz. 1200 MHz operation, the unit delivers 10 (2.5 AM) Watts.
- High speed processing using two 16-bit DSP chips, double precision computing and a 100 MHz CPU and 24-bit A/D and D/A converters.
- The Kenwood Sky Command System II Plus is built-in.
- Built-in auto antenna tuner, DX cluster tune and an antenna terminal dedicated to HF low-band operation.

2 Meters plus Weather

TM-281A

$CALL
HRO Discount Price



On or off road, the TM-281A delivers powerful mobile performance with 65 W maximum output. The weather alert radio function checks the 1050 Hz tone from NOAA (US only). The radio features 200 memories (100 if memory channel names are assigned to the channels), menu for easy control and function selection, CTCSS or DCS to reject unwanted calls, easy to read large LCD alphanumeric display, FM and narrow band FM ready, and free PC memory control software is available.

HRO Offers Extended Warranties for Kenwood Radios.

Dual-Band Mobiles

TM-D710G
2 m / 70 cm

$CALL
HRO Discount Price



Kenwood provides advanced APRS® ham radio equipment with the TM-D710G mobile transceiver. It offers even more features and versatility than its predecessor. The detachable control head comes with remote cable for easy installation. The radio incorporates a 9-pin PC connection for easy hook-up to program frequencies and other APRS® mapping programs. Your TM-D710G is a full dual-band radio so VHF+VHF / VHF+UHF / UHF+UHF operation is possible. Full digipeater functions allow anyone to set up a digipeater location wherever needed to help fill in APRS® nationwide network. Internet gateway operation is also possible for world-wide text communication over VHF.

- Now includes built-in GPS and upgraded firmware.
- Output 50 W VHF/ UHF.
- Receives 118-1300 MHz (cellular blocked).
- Two back light colors: amber / green.
- Alphanumeric dot-matrix LCD display.
- Easy-to-use menus. 1000 memories.
- Internal clock for APRS® time & date stamping.
- APRS® filter and sort functions.
- APRS® speed and altitude beaconing.
- Three different APRS® grids.
- EchoLink® ready with 10 dedicated memories.
- APRS® QSY function, delay algorithm, voice alert and weather beaconing.
- Dual receive and NOAA weather alert.
- SkyCommand II.
- Sound card interface.
- VGS-1 voice guide and storage optional.
- NMEA 0183 GPS i/O port.
- Free MCP programming software.

TM-V71A
2 m / 70 cm



Kenwood's TM-V71A FM dual bander is locked and loaded for action. It is equipped to shine in any mobile communications role. It features 50 W output, 1000 memory channels, multiple scan options and PC connectivity.

- High power output - 50 W on VHF/ UHF.
- Same band dual receive (V/V, U/U, V/U).
- Compatible with ARRL TravelPlus.
- "Five-in-One" programmable memory storing five different operating profiles.
- 1000 split memory channels plus an additional 10 for programmable scan.
- PC programmable w/PG-5G (optional).
- Built-in CTCSS/DCS encoder.
- 104-code digital code squelch.
- Invertible front panel.
- Choice of backlight (amber / green).
- Voice guidance and storage option with optional VGS-1.
- Weather alert / RX (US only).
- EchoLink® Sysop mode for node terminal operation.
- EchoLink® memory autodialer.
- Wide band receive (118-524 MHz and 800-1330 MHz cellular blocked).
- MC-59 16-key hand microphone with backlighting.
- Selectable repeater offset or auto repeater offset (on VHF only).

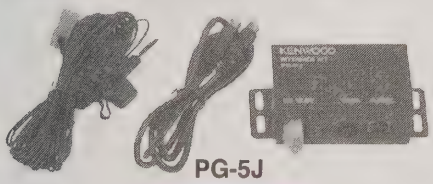
TNC with APRS®



RC-D710

Add TNC to Your TM-V71A

The RC-D710 is a stand alone 1200 / 9600 bps TNC with APRS® firmware. With the supplied accessories, the RC-D710 is a full upgrade to the TM-V71A. By exchanging the TM-V71A panel with the RC-D710, you will have the full functionality of the TM-D710A. Supplied accessories include: open ended GPS cable, cable with modular plug for panel connection, two bases for control head (mobile and base), line filter, and instruction manual on CD-ROM.



PG-5J

Interface Kit

Functioning as an external modem, the PG-5J connection kit makes the RC-D710 a complete stand alone APRS® /TNC for any of these Kenwood models: TM-D710A, TM-V71A, TM-D700A, TM-G707A,TM-V7A, TM-732A, TM-733A, TM-255A, TM-455A. Includes data and DC cables.

Extended Radio Warranties

Kenwood VHF / UHF Specifications

Model	DC Power Supply	Transmit	Receive	Output Power	Sensitivity	HRO Price
TM-281A	13.8 V	13 A	1.2 A	65 W	<.16 µV	CALL
TM-V71A	13.8 V	13 A	1.2 A	50 W / 50 W	<.16 µV	CALL
TM-D710G	13.8 V	11.5 A	1.0 A	50 W / 50 W	<.16 µV	CALL

Handheld Battery Packs

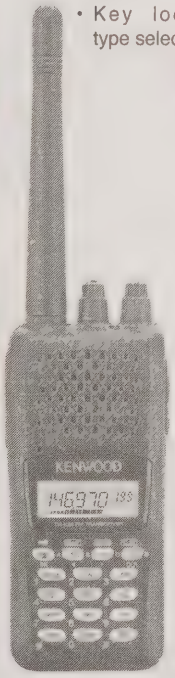
Battery	Voltage	Rating MAH	Desk Charger	Radio Series	HRO Price
PB-42L	7.4	2000	-	TH-F6A	$73.95
PB-43N	7.2	1100	KSC-24	TH-K2AT	$41.95
PB-45	7.4	1800	KCS-32	TH-D72A	$69.95
KNB-65L	7.4	1520	KSC-35S	TH-K20A	$47.95

One Band

TH-K20A
2 m

This 2-meter handheld is the successor to the TH-K2 series.

- Tone alert (bell).
- Cross tone.
- 5.5 W RF output.
- Weather CH scan.
- VOX Included (optional headset required).
- Auto repeater offset.
- Direct function key.
- Firmware upgradable.
- Built-in CTCSS, DCS and 1750 Hz tone burst.
- Battery capacity indicator.
- Direct frequency entry.
- Auto repeater offset.
- Time-out timer.
- Beat shift.
- Frequency shift.
- Key lock type select.



Dual Band

TH-D72A
2 m / 70 cm

Enhanced GPS & APRS® capability

- 2 m / 70 cm transmit with wide band receive.
- Dual receive, V/V, U/U, V/U, U/V.
- 5 Watts transmit.
- Built in GPS uses the SiRF Star III chipset (same as Garmin).
- GPS track logging function. Memory can be output to PC in KML format to be displayed on Google Maps.
- 1000 memory channels with 8 digit alpha name function.
- Built in 1200 / 9600 TNC AX.25 with KISS mode and digipeat functions.
- Mini USB connector built-in.
- Built-in Kenwood Sky Command II.
- External GPS ready, built in RS-232 com port (same as D7).
- Air band RX with 8.33 kHz step.
- Free programming software.
- Smart beaconing.



Tri Band

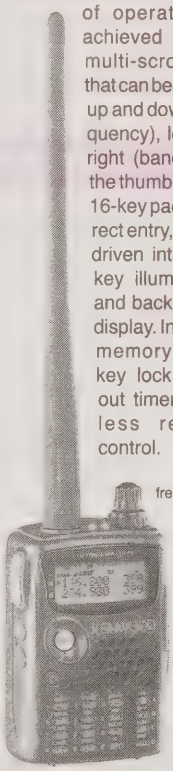
TH-F6A
2 m / 220 Mhz / 70 cm

$CALL – HRO Price

The TH-F6A has a dual personality: it's a 3-band transceiver and also a wide-band (0.1-1300 MHz*) receiver. In addition to FM / FMW / FMN / AM and SSB / CW, the receiver has a special weather channel mode.

It can receive 2 frequencies simultaneously, even on the same band. The rig features 435 memories including 3 call channels and another 20 for programmable scan. The HT comes equipped with a 7.4 volt 2000 mAh lithium-ion battery providing 5 Watts output. Ease of operation is achieved with a multi-scroll key that can be rocked up and down (frequency), left and right (band) with the thumb. Has a 16-key pad for direct entry, menu-driven interface, key illumination and backlit LCD display. Includes memory shift, key lock, time-out timer, wireless remote control.

*Cellular frequencies blocked



Kenwood Handheld Specifications

Model	Freq Range	Power Supply	Power Out	Current Transmit	Current Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Discount Price
TH-K20A	144-148 MHz	6-9 VDC	5.5 W			<.16 µV	4.4 (11.2)	2.13 (5.4)	1.0 (2.5)	7.4 (210)	CALL
TH-F6A	144/220/440MHz	5-7.5VDC	5 W	2.0 A	35 mA	<.13 µV	3.4(8.7)	2.3(5.8)	1.2(3.0)	8.8 (250)	CALL
TH-D72A	144/440MHz	7.4VDC	5 W			<.18 µV	4.78(12.1)	2.28(5.8)	1.31(3.3)	13.1 (370)	CALL

YAESU

The radio



FTDX5000MP Limited

$CALL for HRO Price

The FTDX 5000 MP Limited HF / 50 MHz 200 Watt transceiver is a premium class Yaesu radio with 2 independent receivers plus many unique options and accessories designed to meet the performance requirements of even the most demanding serious amateur radio operator.

Desk Microphones

MD-200 A8X

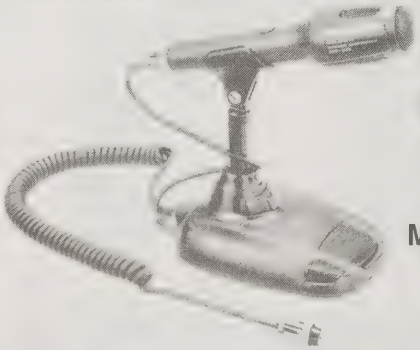
$CALL

HRO Price

Desk microphone designed for base station use with Yaesu's newest generation transceivers.

Features a studio-quality polyethylene teraphthalate film dynamic element. Provision for incorporating user supplied mike element with a switch to select between the standard and user element.





MD-100 A8X

$CALL

HRO Price

This desk microphone features selectable low-cut filtering and high-emphasis active filtering that allow you to tailor the microphone response for optimum voice clarity or DX punch. It has a large push-to-talk switch and latching button, along with a large rotary up/down, slow/fast control for scanning.

- The FTDX5000MP Limited robust and high-power final amplifier stage incorporates two super reliable FETs (VRF-150; drain-source voltage 170 V/gate source voltage ±40 V, total device dissipation 300 W) in a push-pull configuration, offering a solid 200 W output (75 W class A operation).
- The FTDX 5000MP Limited radio has its own built-in power supply (110 / 220 VAC).
- Two (2) totally independent receivers give you performance and flexibility previously only provided by much more expensive radios.
- Super sharp "roofing" filters for VFO-A / main receiver. Filters are selectable between 300 Hz, 600 Hz, 3 kHz (6-pole crystal filter), 6 kHz, 15 kHz (4-pole MCF).
- Variable CW audio peak filter, and high / low-cut filtering created through the very latest in DSP technology. CW width: 50 / 100 / 150 / 200 / 250 / 300 / 350 / 400 / 450 / 500 Hz. CW pitch frequency: 300~1050 Hz (10 Hz steps).
- Three electroluminescent clear displays included for easier operation and control of the sub-frequency, graphical wave and menu function.
- 32-bit floating point DSP based on the TI TMS320C6727B (@300 MHz), one EACH for VFO-A and VFO-B.
- True analog meter precision. Enjoy the huge size metering system and instant reaction time.
- IF output (9 MHz) from VFO-A/ main receiver.
- Provides loads of practical level indication that clearly show settings of microphone gain / RF power / CW pitch / keyer speed / processor level / VOX delay time / break-in delay time.

Valuable Options

- **SM-5000 Matching Station Monitor.** With the bandscope is a complete, enhanced stereo speaker system with superb audio quality.
- **Yaesu Data Management Unit DMU-2000**. Utilize its powerful audio scope, oscilloscope, spectrum scope, logging, and rotator control capabilities using your own personally selected and purchased computer display monitor and keyboard.
- **Yaesu External Fully-Automatic Micro-Tuning Units.** Three modules available: A (160 m band), B (80 and 40 m bands), C (30 and 20 m bands)

Extended Warranties – See Page 41.



FT-DX1200

HF / 50 MHz 100 Watt Transceiver

Continuing the Yaesu "FT DX" Legacy of Excellence established decades ago, the FT DX 1200 is designed for the casual operator as well as the competitive operator, whether you primarily participate in contests, chase DX, or enjoy field operating. The high frequency design technology it has inherited ensures "Best in Class Performance."

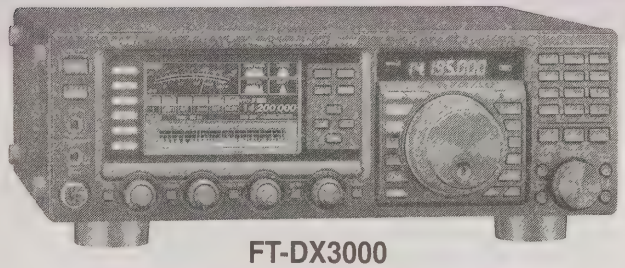
The FT DX 1200 provides up to 100 Watts on SSB, CW, FM, and AM (25 Watts carrier) and a rugged state-of-the-art highly-balanced receiver circuit configuration for top performance on today's crowded bands. Similar to the high-end "Yaesu FT DX" series, it uses 32-bit high speed floating point DSP for renowned proven performance.

A built-in 4.3-in TFT wide full color high resolution display with loads of information provides superior operability and visibility for the FT DX 1200 user. A spectrum scope located just below the LCD display gives the operator all the information needed to be at the right place on the band with the right receiver set-up to have a satisfying experience with a casual QSO chat or while digging out a rare desired weak signal contact.

Optional accessories are offered to provide very desirable additional features that make the FT DX 1200 a flexible true high performance platform for all hams – no matter what mode they choose to operate.

- General coverage reception from 30 kHz to 56 MHz.
- FM and AM – wide and narrow modes included.
- The main tuning knob, made from machined aluminum, has the solid feeling of a large fly wheel, while being nimble and smooth in operation. Each user may set his / her favorite torque feeling of the main dial rotation.
- External control (CAT) is possible using the serial port or the optional SCU-17 USB interface unit. This feature means the FT DX 1200 can be remotely controlled from a distant location.
- High performance triple-conversion receiver circuit structure enables elimination of unwanted signals through filters at each stage as well as optimized gain distribution.
- QRM and QRN rejection using IF shift, IF width, contour, IF notch, or CW audio peak filter.
- Selectable roofing filters of 3 kHz, 6 kHz, and 15 kHz.
- Three IPO settings – best signal reception during changing band conditions.
- CW features include CW zero-in display, CW spot, full break-in, adjustable CW "VOX" delay, CW mode reversable, separate front and rear key jacks, built-in electronic keyer, 4 channel message memory.
- Two antenna inputs.
- Optional fully automatic μ-tuning kit.
- Top performing receiver RF front end.
- Connected to a PC with a USB cable through the use of an optional SCU-17 interface.

Extended Warranties Available from HRO on Yaesu Radios



FT-DX3000

HF / 50 MHz 100 Watt Transceiver

The FT DX 3000 is one of the long line of top-performing Yaesu FT DX transceivers. It inherits the design concepts of the FTdx5000 transceiver that has received high praise from all over the world by those pursuing the highest ideal of amateur HF communication equipment.

The FT DX 3000 exhibits phenomenal multi-signal characteristics first demonstrated in the top-rated FT DX 5000. Using the two signal dynamic range measuring method with 10 kHz signal separation, the FT DX 3000 performance is 108.5 dB, IP3 +37 dBm. With frequency separation of only 2 kHz between the desired signal and an interfering signal, the dynamic range measures 106 dB and IP3 +33 dBm.

With all its features and amazing performance at a truly affordable price, the FT DX 3000 is a terrific rig for home or a DXpedition.

Yaesu's latest, with amazing receiver performance from its FT-DX5000 heritage

- Covers all amateur radio bands from 160 to 6 meters.
- General coverage reception from 30 kHz to 56 MHz.
- 100 Watt output on all bands.
- FM and AM wide and narrow modes.
- IF DSP for QRM rejection.
- High speed spectrum scope.
- AF scope display.
- RTTY / PSK31 encoder / decoder (optional).
- 3 antenna connectors.
- Built-in high-speed automatic antenna tuner included. The antenna tuner uses LC switching. It has a large capacity 100 channel memory; the tuning data is automatically memorized to reduce tuning time when changing frequency.
- USB interface equipped.
- Wide viewing angle 4.3" LCD display.
- Independent frequency display with wider viewing angle and higher contrast.
- Signal output for an external receiver and 9 MHz IF.
- USB input for firmware updates.
- IF width and IF shift functions.
- Fifteen separate band pass filters.
- 3 kHz roofing filter for SSB and 300 Hz (optional) and 600 Hz roofing filters for CW.
- "Contour" tailors the received audio signal without changing the bandwidth.
- IF notch has attenuation characteristics of 70 dB or more.
- Digital noise reduction by DSP.
- Many CW features including CW audio peak filter, CW decode, CW spot, Auto zero-in display, full break in, four message memory (50 characters each) automatic "beacon" keyer mode and separate key jacks on the front and rear panels.
- Effective QRM rejection is achieved using 32-bit high speed floating decimal point DSP. The signal is processed with the high speed 300 MHz clock frequency.
- Microphone amplifier with parametric equalizer.
- IF DSP speech processor.
- 5 digital voice messages. Each memory channel is capable of storing up to 20 seconds of audio using the optional DVS-6.
- Dimensions 14.4" x 4.5" x 12.3" (W x H x D) and weighs only 22 pounds.
- External control (CAT) is possible using USB or Serial Port; this feature means the FT DX 3000 can be remotely controlled.



FT-991 Transceiver

HF / 50 MHz / VHF / UHF C4FM FDMA Digital

$CALL – HRO Discount Price

The FT-991 operates on SSB, CW, AM, FM, packet and system fusion C4FM digital. Whether you operate at home, mobile or in the field, the FT-991 will provide outstanding fundamental performance and invite expansion into a full-featured base station. Uncompromising receiver circuit ensures excellent performance from HF to VHF / UHF.

- Receive coverage 160 m through 70 cm.
- Transmits 100 W (HF), 50 W (2 m), 50 W (70 cm).
- 3.5 inch TFT full-color touch panel operation.
- High speed spectrum scope with automatic control built in.
- Roofing filter 3 kHz and 15 kHz.
- Triple conversion with 1st IF frequency of 69.450 MHz on all bands.
- High accuracy TCXO ±0.5ppm.
- Separate RF amps for best characteristic on each band.
- High resolution DDS and PLL local oscillator.
- 32 bit high speed floating point IF DSP.
- IF width and IF shift.
- Contour, DNR, IF Notch. APF for CW only.
- 160-6 m, high speed automatic antenna tuner.
- Full color TFT / LCD display. Four user defined function keys.
- Electronic keying with break-in support, electronic keyer weight control.
- Message memory function.
- 50 tone CTCSS encoder / decoder for FM operation.

Extended Warranties on Yaesu.

10m / 6m / 2m / 70cm FM

FT-8900R

$CALL – HRO Price

The FT-8900 combines "traditional" 2m / 70cm local communications with the exciting capability of Sporadic-E or F2 DX on the 10m and 6m bands, allowing nationwide FM communication.



- Covers 28-29.7 / 50-54 / 108-180 / 320-480 MHz and 700-985 MHz (cellular blocked and non-restorable).
- Independent 2-channel, dual-receive, full duplex.
- High power output with 50 Watts on 10m / 6m / 2m and 35 on 70cm.
- Large, easy-to-read LCD display.
- Built-in duplexer.
- More than 800 memory channels. 799 "regular," 6 "home," 5 sets of band edge, and 6 "Hyper."
- Cross-band repeater capability.
- Versatile scanning.
- CTCSS / DCS built-in.
- User-programmable mike keys.
- Remote head mounting with optional YSK-8900.

High-Power External Loudspeakers



MLS-100

$44.95 - HRO Discount Price

This high-performance communications speaker matches the impedance and output requirements of most Yaesu transceivers. It mounts on a swivel stand that is supplied along with mounting screws and bolts. A 6.5 foot (2 m) audio cable that terminates in a 3.5 mm mono mini plug is also supplied.



MLS-200-M10

$38.95
HRO Discount Price

Yaesu's external speaker matches the impedance and output requirements of most Yaesu transceivers. The waterproof (IP55) speaker has 4Ω impedance. Maximum power input: 12 W. The speaker works in stereo with the FTM-350, FTM-400, FTM-10 radios. Comes with 3-meter cable with 3.5 mm standard 3-contact miniature phone plug.

Yaesu HF Specifications

		Power Supply		Current Drain		Power Output									
Model	Frequency Range	AC	DC	Xmit	Rec	AM	FM	SSB	CW	Mike Z ohms	Receive Circuitry	Sensitivity†	RIT / XIT Range	Audio Output	HRO Price
FTDX1200	30 KHz-60 MHz		13.8 VDC	23 A	2.1 A	25 W	100 W	100 W	100 W	200-10K	Triple	< .16 µV	±9.99 kHz	2.5 W	CALL
FTDX5000 Series	30 KHz-60 MHz	90-264		5.5 A		50 W	200 W	200 W	200 W	200-10K	Triple	< .2 µV	±9.99 kHz	2.5 W	CALL
FTDX3000	31 KHz-60 MHz		13.8 VDC	23 A	2.1 A	25 W	100 W	100 W	100 W	200-10K	Double	< .2 µV	±9.99 kHz	2.5 W	CALL
FT-450D	30 KHz-56 MHz		13.8 VDC	22 A	1.5A	25 W	100 W	100 W	100 W	200-10K	Double	< .25 µV	±9.99 kHz	2.2W	CALL
FT-857D	See page 16		13.8 VDC	22 A	1 A	25 W 12.5 W 2m 5W 70cm	100 W 50 W 2m 20 W 70 cm	100 W 50 W 2m 20W 70 cm	100 W 50 W 2m 20 W 70 cm	200-10K	Double	< .2 µV	±9.99 kHz	2.5 W	CALL
FT-991	See product description		13.8 VDC	23 A	2.2 A	2 - 25 W	100 W 50 W 2m 50W 70 cm	100 W 50 W 2m 50W 70 cm	100 W 50 W 2m 50 W 70 cm	200-10K	Triple	< .158 µV HF < 125 µV 6m < .111 µV VHF.UHF	±9.99 kHz	2.5 W	CALL

† Sensitivity measurements for 1.8-30 MHz SSB,CW

HF TRANSCEIVERS WITH 6 M / 2 M / 70 CM

Compact HF + 6m Transceiver

FT-450D
$CALL
HRO Discount Price

Now with DSP-2 built-in



The Yaesu FT-450 provides world class performance in an easy to use, compact package. It employs state of the art IF DSP technology to bring an array of advanced features to the operator. Transmit frequency coverage includes 160 to 6 meters. The receive range is 30 kHz to 54 MHz. Power output is 100 Watts on HF and 6 meters. Operating modes include USB, LSB, CW, AM and FM.

- The rig is 9" W X 3.3" H X 8.5" D and weighs 7.9 pounds. Perfect for mobile or portable operation.
- Includes MH-31A8J hand mic, mic clip and DC power cord.
- Includes 10 kHz roofing filter right after the first mixer, providing narrow band selectivity protection of the IF & DSP stages – rarely found in rigs of this price range.
- 400 MHz built-in IF DSP.
- Built-in electronic keyer.
- LCD multi-function display.
- Built-in TCXO ± 1ppm/hour (after warmup).
- AFC Fast-Slow-Auto-Off selection.
- Clarifier adjustment.
- Dedicated data jack for FSK-RTTY.
- CTCSS.
- User functions configurable by menu.
- Digital voice announcements of frequency, mode and S-meter.
- 500 regular memories and two voice memories.
- CW beacon function.
- Illuminated key buttons.

5 Watt Backpack / HF Plus

FT-817ND
$CALL – HRO Discount Price



Now with FNB-85 battery
1400 mAh NiMH + PA-48B Charger

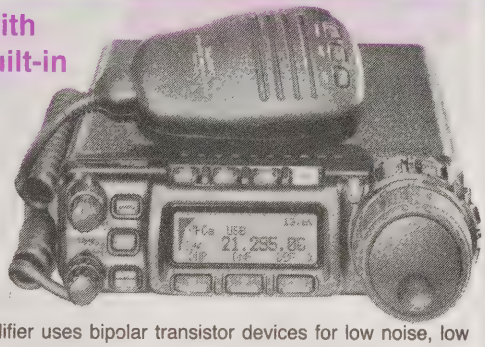
- Fully self-contained battery-powered low-power amateur transceiver for portable, camping, or mountain use. Includes 6 m.
- Transmits on: 160-10 m, 50 / 144 / 430-450 MHz, plus Alaska Emergency Channel (5167.5 kHz).
- Receives: 100 kHz-56 MHz; 76-154 MHz; 420-470 MHz. (Exact frequency range may differ slightly.)
- Operating modes: USB, LSB, CW, AM, FM, WFM, digital (AFSK), packet (1200 / 9600 FM).
- Power output: 5 Watts SSB/CW/FM with 13.8V external DC; 1.5 W AM carrier; 2.5 W SSB / CW / FM with 9.6V Ni-Cd Pack or 8 "AA" batteries (AM: 0.7 W); up to 5 W SSB / CW / FM power (maximum) programmable via menu on NiMH / AA cells.

The Smallest HF + 6m + 2m + 70cm

Now with DSP-2 built-in

FT-857D

$CALL
- HRO Discount Price



The power amplifier uses bipolar transistor devices for low noise, low distortion and high reliability. Has an extensive cooling system with a thermostatically-controlled fan and aluminium die cast chassis.

The receiver front-end has a very low noise floor and wide dynamic range. Features a double conversion superheterodyne system (single on WFM) with the second IF at 455 kHz; bandpass filtering, device selection and gain distribution for strong signals. On VHF and UHF, the very low noise MOSFET preamplifier and active DBM mixer aid in working weak signals and rejecting intermodulation. YSK-857 Separation Kit included with the radio.

- Receive coverage 100 kHz to 56 MHz, 76-108 MHz, 420-470 MHz. Includes 60m.
- Transmits 160-6 m, 144-148 MHz, 430-450 MHz and 5167.5 kHz (Alaska emergency frequency on USA version).
- SSB, CW, AM, FM, packet (1200 / 9600 bps) operation.
- Power out: 100 W (160-6 m), 50 W (2 m), 20 W (70 cm).
- DSP bandpass filter, DSP auto-notch filter.
- DSP noise reduction, microphone equalizer.
- VHF / UHF features: versatile tone control selections, automatic repeater shift, Smart Search™, Spectrum Scope and ATS™.
- DXer features: IF shift, IF noise blanker, intercept point optimization, adjustable AGC, RIT. RF gain control, and VOX.
- Easy data mode for operation on 1200 / 9600 bps FM packet, RTTY, SSTV or PSK31. Rear panel 6-pin mini-DIN connector for each connection of these modes.
- CW features: built-in electronic keyer, CW message memory with beacon mode, CW pitch / sidetone control, and CW trainer.
- 200 main memories, 8 character alphanumeric labels. 10 groups with 20 memories each.
- Large multi-color display.
- Battery voltage meter, TX meter selection, two antenna connectors, versatile scanning features. auto power off, time out timer and CAT system.

Options include:
- **ATAS-120:** Active Tuning Antenna System for mobile, portable or apartment / balcony use. Designed for use on the 7 / 14 / 21 / 18 MHz amateur bands. Can be used fully retracted on the 50 / 144 / 430 MHz bands.
- Collins® Mechanical Filters:
  YF-122S 2.3 kHz SSB
  YF-122C 500Hz CW
  YF-122CN 300Hz CW
- **TCXO-9** High Stability Reference Oscillator.

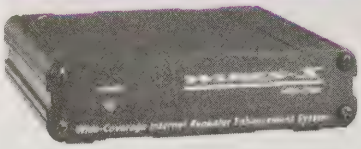
HRO Offers Extended Warranties on Yaesu Radios. See Page 41.

HRO ships quickly from the store nearest you.

YAESU
The radio

DUAL BAND MOBILES

Internet Linking Kit



WIRES-X Internet Linking Kit

$CALL
HRO Discount Price

WIRES-X supports both Analog and the new C4FM Digital radio communications modes. Yaesu's System Fusion, already the fastest growing Amateur Radio Digital System, is certain to see yet another pique in interest thanks to WIRES-X!

- WIRES-X allows communications between both C4FM digital stations and conventional FM stations via WIRES-X.
- High quality voice communication is achieved by repeating C4FM digital data as it is via the Internet.
- WIRES ID: Adopted a simple user ID system using alphanumeric characters.
- Smart Access: WIRES-X automatically connects to nodes and rooms by utilizing the Smart Access function. (Digital node station only).
- Preset Search: User can find local node station and receive their frequency setting data for automatic setup. (Digital node station only).
- Activity Monitor: IDs of active nodes and rooms can be searched from the C4FM transceiver via a local node. (Digital node station only).
- News Station: Stores and reads digital data such as text, images and audio data. (Digital node station only).
- Supports Analog FM mobile transceiver for Analog node station as well as Digital node station with FTM-400D.

HRO Offers Extended Warranties for Yaesu Radios. See Page 41.

2m / 70 cm Dual Band Mobiles

2 m / 70cm Dual Band C4FM FDMA Digital

FTM-100DR **$CALL** – HRO Price



The FTM-100DR VHF/UHF Dual Band Transceiver, an exciting new way to enter into Yaesu's revolutionary world of System Fusion C4FM Digital Communications.

- 50 Watts on both VHF and UHF.
- Highly visible and compact 160 x 40 pixel graphical dot-matrix display can be detached from the body of the radio and remotely mounted.
- Operates in three (3) Digital modes and one Analog mode.
- Automatic Mode Select (AMS) function that instantly detects the received signal mode.
- V/D Mode (Voice/Data simultaneous communication mode).
- Voice FR mode uses the full 12.5 kHz bandwidth to transmit digital voice data.
- Data FR mode uses the full 12.5 kHz bandwidth for data communication.
- Analog FM is effective when weak signal strength causes audio drop out in the digital mode, and enables communication up to the borderline of the noise level.



2 m / 70 cm Dual Band C4FM FDMA Digital

FTM-400XDR
$CALL – HRO Price

Operate on 2 m and 70 cm with this mobile transceiver. Select power of 50, 20, or 5 Watts on either band. Enjoy wideband receive from 108-470 and 800-999 MHz (less cellular). Four scan modes: VFO, memory, programmable memory, or selected memory. Each memory can store frequency, mode, tag, repeater information, tone, DCS, antenna squelch information, memory skip information, and transmission output. Set the screen background to any of 5 colors (green, blue, orange, purple or gray). Capture images and video by connecting a USB camera (not supplied) and transmit and receive them. There is a port for a microSD card.

- Transmit bands - 2 m / 70 cm.
- Double conversion receiver; twin RX.
- Large color display.
- 500 memories per band.
- Internal clock / calendar.
- Image receive / transmit.
- Enhanced GPS / APRS®.
- 1000 memories in 2 banks; four scan modes.
- Band scope; spectrum scope.
- ARTS™ and optional Bluetooth®.
- Optional voice guide speaks operating frequency and records received signals.



2 m / 70 cm Dual Band FT-7900R

$CALL – HRO Price

The FT-7900R provides 50 Watts of power on the 144 MHz band and 40 Watts on 430 MHz. It is designed for simplicity of operation with high performance in the receiver section. The FT-7900R is ideal for the active Ham who has a need for simplex, repeater, or FM satellite operation on both bands, but without the complication of cross-band repeat capability.

- Wide frequency coverage.
- More than 1000 memory channels, each capable of storing a 6-character alpha-numeric label.
- YSK-7800 remote mounting kit (option).
- WiRES™ internet linking capability.
- One-touch "Hyper Memory" operation.
- High power output - 50 Watts of power output on VHF and 40 Watts on UHF.

MOBILES

HANDHELDS

2m Mobiles

FTM-3200DR
2 m 65 W Transceiver
C4FM / FM Digital
$CALL – HRO Price

NEW!



The new FTM-3200DR is a ruggedly built yet compact C4FM / FM VHF mobile transceiver, providing high output power of up to 65 Watts.

- Modulation modes: C4FM digital (V/D mode, VFR mode, DFR mode), FM analog.
- AMS (automatic mode select) function automatically recognizes the signal as C4FM digital or conventional FM.
- Front panel speaker with 3 W of audio output.
- Voice / data simultaneous communication mode.
- Digital GM (group monitor) function.
- Bright multi-colored LED mode / status indicator shows the transceivers' status.
- Illuminated microphone with direct frequency entry.
- 220 memory channels with alpha-numeric tags (maximum 8 characters).
- CTCSS / DCS encode / decode with split tone and DCS encode-only capability.



FTM-2900R
2 meters
$CALL – HRO Price

The FT-2900R, King of the Mobiles, is a ruggedly-built, high-performance 75-Watt 2-meter mobile FM transceiver with outstanding receiver performance and 3 Watts of loud clean audio.

- 75 W power with no cooling fan needed! Four selectable power output levels: 75 / 25 / 10 / 5 Watts. Power levels may be stored in memory.
- 221 memory channels, including 200 "regular" memories, ten pairs of band-limit, and an instant-recall "Home" channel. Store repeater shift, CTCSS / DCS data, power output level, scanning status ("Skip"), and alphanumeric labels.
- CTCSS /DCS encode/decode built in.
- "Severe weather" alert.
- Wide / narrow deviation selection.
- Smart Search™.
- Versatile scanning capability.
- "Internet" key, for quick access to Internet-linked repeater systems. Configure the "Internet" key to send a single DTMF digit or a DTMF string, for operation on a WIRES™.
- MH-48A6J DTMF direct access microphone.
- RF-level squelch.
- Interactive programming menu.
- Supply voltage display.
- Large 6 digit backlit LCD display.

FT-1900R
2 m plus extended receive
$CALL – HRO Price



This 55-Watt 2m mobile FM transceiver has outstanding receiver performance and crisp, clean audio. Optimized for ease of operation day or night.

- 55 Watts of power output, with "low power" settings of 25, 10, and 5 W.
- Four user-programmable "soft" keys on the microphone.
- 200 regular memories, ten pairs of band-limit and a one-touch "Home" channel. Channels store repeater offset, CTCSS or DCS data, and can have a six-character label. Allocate memories to as many as eight banks.
- Multiple scanning modes.
- Large 6 digit backlit LCD display.
- 3 Watts of audio output.
- Receiver coverage 136-174 MHz, includes commercial, military, public safety, and marine communications.
- Built-in CTCSS / DCS encoder / decoder.
- Automatic repeater shift.
- Enhanced paging and code squelch.
- Password security.
- Severe Weather Alert (US only).
- Cloning.
- RF squelch, CW training.
- Adjustable TX deviation level.
- Automatic power off.

Quad Band

VX-8DR
2 m
220 MHz
70 cm / 6 m

$CALL
HRO Discount Price



Shown with Optional GPS

The VX-8DR APRS® / GPS / Bluetooth® handheld transceiver includes the features and specifications of the VX-8R but also new expanded APRS® capabilities to meet the needs of even the most active APRS® user. The VX-8DR and VX-8R look the same and use the same accessories.

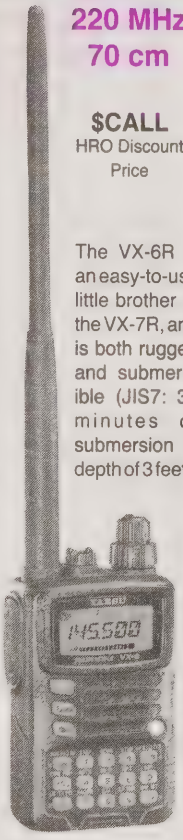
Additional APRS® features of the VX-8DR compared to the VX-8R:

- Smart Beaconing™ function: when using APRS® for position tracking, beacon timing is adjusted to your traveling speed and location to plot a smoother trace.
- The number of station-list memories has increased from 40 to 50.
- The number of APRS message memories has increased from 20 to 30.
- DIGI-PATH route indication function: The APRS® packet data includes digipeater routing info.
- Heads up compass display to the GPS Screen: your traveling direction is always toward the top of the display.
- The number of DIGI-PATH route settings is increased from 1 to 7.

Tri Band

VX-6R
2 m
220 MHz
70 cm

$CALL
HRO Discount Price



The VX-6R is an easy-to-use little brother to the VX-7R, and is both rugged and submersible (JIS7: 30 minutes of submersion at depth of 3 feet).

- Covers 504 kHz to 998.99 MHz (with cell blocked).
- 5 Watts of power 144 and 440 MHz bands (1.5 W on 222 MHz).
- FNB-80LI 1400 mAh lithium-ion battery pack standard.
- Emergency automatic ID (EAI) system.
- Enhanced paging and code squelch (EPCS).
- Wake-up battery saver .
- Security password.
- 900 memories with alphanumeric labels.
- One-touch memory access.
- CW trainer.
- Compact package measuring just 2.3" x 3.5" x 1.1" WHD.
- Oversized volume and squelch knobs.

YAESU

The radio

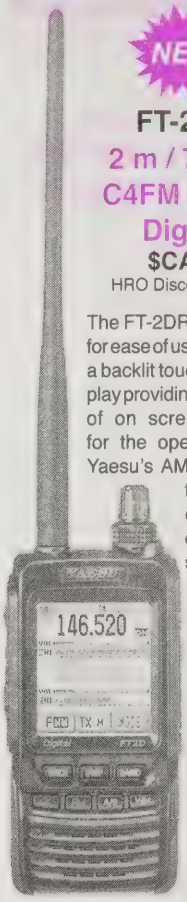
DUAL BAND HANDHELDS

NEW!

FT-2DR

2 m / 70 cm
C4FM FDMA
Digital

$CALL
HRO Discount Price



The FT-2DR is designed for ease of use. It includes a backlit touch panel display providing a high level of on screen visibility for the operator. Has Yaesu's AMS capability to recognize either digital or FM analog signals.

- 5 Watts output at 7.4 VDC.
- System Fusion compatible.
- C4FM digital V/D mode, voice FR mode, data FR mode and conventional FM.
- 700 mW audio.
- Snapshot function with image data display on LCD and transmitting image data capability.
- Built-in high sensitivity 66 channel GPS with antenna.
- Backtrack function to return to starting point.
- Smart navigation function.
- 1200 bps 9600 bps APRS built-in.
- 1245 memory channels.
- Wideband receive capability 0.5 - 999 MHz (USA cellular blocked).
- AF dual monitor capability.
- Has micro SD card slot with GPS logging to SD card.
- High capacity lithium-ion battery.

HRO Discount Price $CALL

FT-60R

2 m / 70 cm

Extensive Receive Frequency Coverage



Emergency Automatic ID for Search & Rescue

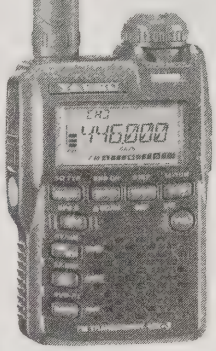
Receives 108-520 MHz and 700-999 MHz (cellular blocked) for monitoring amateur, public safety, business, marine, aircraft, government communications.

- Tough die-cast, water resistant construction.
- 1000 memories w/alphanumeric labels.
- 5 Watt output.
- CTCSS and DCS (encode/decode) with split tone; DCS encode only capable.
- ARTS™.
- One-touch to NOAA.
- Nine DTMF auto-dial memories.
- WIRES™ Internet linking.
- Huge LCD display.
- Two front panel programmable keys.
- Automatic repeater shift.

VX-3R

2 m / 70 cm

$CALL
HRO Discount Price



The world's smallest dual-band HT has up to 1.5 W of output power (up to 3 Watts w/external DC power supply - optional). It's your gateway to VHF, UHF, shortwave broadcast, marine and aircraft bands or WIRES-II™ Internet linking.

- Covers 500 kHz to 999 MHz (cellular blocked).
- 1286 memories.
- AF dual monitor function.
- 3 Watts out on 2 m when on external DC.
- Mechanical dial lock.
- Auto Range Transponder System (ARTS™).
- Exchange text messages with another VX-3R or FTM-10R.
- Frequency counter operation.
- Emergency automatic ID function..
- Optional "AA" battery case..
- CW learning and training feature.

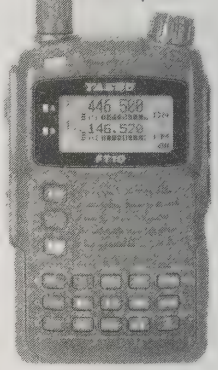
Questions? Call a friendly Ham at HRO.

FT-1XDR

2 m / 70 cm
C4FM FDMA
Digital

$CALL
HRO Discount Price

The FT-1XDR uses 12.5 kHz C4FM FDMA digital modulation mode to enable high speed data communication and reliable voice communication with strong error correction performance. C4FM FDMA provides 9.6 kbps data baud rate speed.



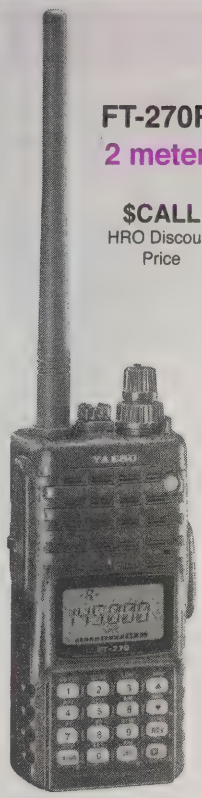
- 2 m / 70 cm.
- GSM (group short message).
- Digital ARTS, USB connector.
- E-GPS, GPS data transfer. 1200 / 9600 bps APRS® data communication.
- Wide receive capability.
- Large dot matrix LCD and illuminated keyboard..
- Built-in GPS antenna.
- Three digital modes (V/D mode, voice FR mode, data FR mode) and an analog mode. V/D mode is voice and data communication in the same time frame.
- Automatic mode select function detects the receive signal mode.
- Real dual band operation (V+V / U+U / V+U). AF dual control.
- Snapshot picture taking ability with optional MH-85A11U speaker mic.
- Preset receiver function – NOAA weather, marine, shortwave.
- Micro SD card slot.
- Up to 5 Watts of reliable power output.
- Includes FNB-102LI high capacity battery, providing up to 8 hours of typical 5 W operation.

Extended Warranties Available for Yaesu. See Page 41.

SINGLE BAND HANDHELDS

FT-270R
2 meter

$CALL
HRO Discount Price



The FT-270R is a compact, high-performance FM handheld providing up to 5 Watts of RF power, along with big audio output (800 mW). Protected against water ingress to IPX7 specifications (submersion for up to 30 minutes at a depth of 3 feet). Features long operating time using the supplied 1400 mAh NiMH battery pack. 16-key direct keyboard frequency entry and direct DTMF input with quick, one-touch access to Yaesu's WiRES-II™ VoIP Internet linking system!

- TX: 144-148 MHz; RX: 136-174 MHz.
- 5 Watts with power levels hi/ med/ low.
- ARTS™ System.
- Automatic repeater shift.
- 200 memory channels.
- Ten memory banks for channel allocation.
- CTCSS / DCS included.
- Smart Search™ memories.
- Ten memory banks for channel allocation.
- Adjustable TX deviation level.
- RF Squelch.
- Battery voltage display.

FT- 277
70 cm

$CALL
HRO Discount Price



The FT-277R is a compact, high performance FM handheld providing up to 5 Watts of RF power, along with big audio output (800 mW). It is protected against water ingress to IPX7 specifications (submersion for up to 30 minutes at a depth of 3 feet).

It is supplied with a 1400 mAh NiMH battery.

The unit includes direct keyboard frequency entry and direct DTMF input along with quick one-touch access to Yaesu's WiRES-II™ VoIP internet linking system.

- Full 5 Watts FM 430-450 MHz.
- Large backlit LCD display.
- 200 memories.
- Submersible construction.
- Power saving circuit design.

Compact with High Performance



FT-257
70 cm

$CALL
HRO Discount Price

The FT-257 for 70 cm is a compact, simple-to-operate handheld radio that provide up to 5 Watts of RF power, along with loud audio output (800 mW). The radio is ruggedly constructed with a water resistant body and sealed tight to meet IPX5 protection requirements.

- Compact size – Case size 2.45" (W) x 4.74" (H) x 1.52" (D) without knob, antenna, and belt clip.
- Light weight – 9.9 oz with furnished battery, antenna, and belt clip.
- Large LCD display – new ergonomic design and large backlit LCD display for better operation.
- 5 Watts of reliable RF power – RF power output 5.0 W (High) / 2.0 W (Middle) / 0.5 W (Low) (@7.4 V).
- Loud audio – 800 mW of loud audio for noisy field operations.
- Wide frequency range – RX 400 - 480 MHz; TX 430 - 450 MHz.
- Password protection keypad / dial / PTT lockout.
- 200 memory channels for serious users.
- Smart search for selecting active channels.
- CTCSS (50 tones) and DCS (104 codes) encode / decode, with split tone and DCS encode-only capability.
- Nine DTMF auto-dialer memories.
- Lots of scanning mode flexibility: VFO / memory / PMS / dual watch.
- Emergency operation (alarm, flash, Morse code message).

Extended Warranties Available for Yaesu Radios. See Page 41.

Programming Kits

To Program HF:
ADMS-4AU-USB FT-817
ADMS-4BU-USB FT-857/897
ADMS-450-USB FT-450D
ADMS-991-USB FT-991
ADMS-DX1200-USB FTdx1200
ADMS-DX3000-USB FTdx3000

To Program Mobiles:
ADMS-2I-USB FT-8800
ADMS-2H-USB FT-8900
ADMS-1900-USB FT-1900
ADMS-2900-USB FT-2900
ADMS-7900-USB FT-7900
ADMS-M100-USB FTM-100DR
ADMS-M400-USB FTM-400DR

To Program Handhelds:
ADMS-1J-USB FT-60R
ADMS-FT2D-USB FT-2DR
ADMS-FT1D-USB FT-1DR
ADMS-VX8-USB VX-8DR
ADMS-270-USB FT-270
ADMS-VX3-USB VX-3R
ADMS-VX6-USB VX-6R

Bluetooth®

BU-2
Bluetooth® Radio Unit
$CALL – HRO Price

Yaesu has updated their BU-1. The new version provides 8 pairing channels and operates with 30 percent less power. Features PTT and VOX. Supported products: VX-8DR, FTM-400XD, and the FT-1XD.

Ham Radio Outlet Accepts

AMERICAN EXPRESS · MasterCard · VISA · DISCOVER

YAESU

The radio

ACCESSORIES

HANDHELD ACCESSORIES	Model	60R	270R 277R	VX-3R	VX-6R	FT-1DR	FT-2DR	VX-8DR	HRO Discount Price
Microphone Adapter	CT-44	•		•		•	•		$16.95
Microphone Adapter	CT-91		•		•				$17.95
Microphone Adapter	CT-131							•	$31.95
VOX Headset	SSM-64A		•		•				$59.95
VOX Headset	SSM-63A	•		•		•	•		$69.95
Speaker/Microphone	MH-34B4B	•		•		•	•		$31.95
Speaker/Microphone	MH-57A4B		•		•				$27.95
Speaker/Microphone	MH-73A4B		•		•				$47.95
Speaker/Microphone	MH-74A7A							•	$64.95
Camera/Microphone	MH-85A11U					•	•		$134.95
Ear Piece Microphone	SSM-55A		•		•			•	$39.95
Ear Piece Microphone	SSM-57A	•		•		•	•		$34.95
DC/DC cigar adapter	SDD-13	•	•		•	•	•	•	$27.95
DC/DC adapter	EDC-6	•	•		•	•	•	•	$8.95
Wall Charger 117 VAC	PA-48B	•	•		•	•	•	•	$28.95
Rapid Charger	CD-15A				•				$39.95
Charger Cradle	CD-26		•						$25.95
Charger Cradle	CD-41							•	$37.95
Desk Top Rapid Charger	VAC-370	•	•						$74.95
Battery 1400 mAh	FNB-80LI				•				$74.95
Battery 1000 mAh	FNB-82LI			•					$32.95
Battery 1300 mAh 7.4 V	FNB-83	•	•						$35.95
Battery 1100 mAh 7.4 V	FNB-101LI					•	•	•	$52.95
Battery 1800 mAh 7.4 V	FNB-102LI					•	•	•	$69.95
Lithium ion 2200mAH	SBR-14LI					•	•	•	$79.95
Battery case AA batteries	FBA-23				•				$29.95
Battery case AA batteries	FBA-25	•	•						$18.95
Battery case AA batteries	FBA-37			•					$18.95
Battery case AA batteries	FBA-39					•	•	•	$31.95
Cloning Cable	CT-27	•		•					$14.95
Cloning Cable	CT-134							•	$39.95
Cloning Cable	CT-168					•	•		$24.95
Data Cable(Dsub>9 pin)	CT-169					•	•		$36.95
Data Cable(11 pin>2.5)	CT-170					•	•		$29.95
Data Cable(2.5>2.5)	CT-176					•	•		$24.95
PC Connection Cable (USB)	SCU-19					•	•		$79.95
Ant Adapt SMA - BNC	CN-3	•	•	•	•	•	•	•	$8.95
Radio Case (soft)	CSC-91				•				$16.95
Radio Case (soft)	CSC-92			•					$16.95
Radio Case (soft)	CSC-93							•	$16.95
Soft Carry Case	SHC-24					•	•		$19.95
GPS Antenna Unit	FGPS-2							•	$74.95

Extended Warranties available for Yaesu

HF Amp & Power Supply



Quadra System

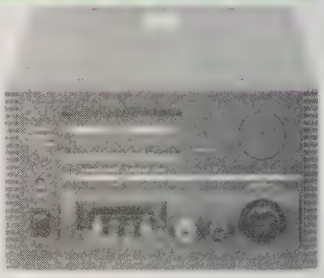
$CALL
HRO Price

Here's all the linear amplifier you should need for operation on both HF (160 - 15 meters) and 6 meters. It is designed for automatic band switching with the FT-450, FT-950, FT-2000, FT-1000D, FT-1000MP, FT-920, FT-990 .FT-900, FT-991, FTdx1200. FTdx3000 and the FTdx5000 HF radios. The amp features 8 MRF150 power MOSFET transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC.

The included external power supply, the VP-1000, allows for easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 Watts out on HF and 500 Watts on 6 meters. At 117 VAC the output is 500 Watts on HF. The amplifier comes with a built-in high speed antenna tuner with four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

Power Supplies

FP-1030A
$CALL
HRO Price



The FP-1030A is a regulated linear supply at 25 amps and includes meters.

FP-1023A **$CALL** – HRO Price

The FP-1023A has 23 amps continuous and 25 intermittent. This low-profile switching power supply operates on 110 or 220 VAC.

Yaesu Handhelds

Model	Frequency	Mode	Pwr Supply	Power Out	Current Transmit	Drain Receive	Sensitivity	Height in (cm)	Width in (cm)	Depth in (cm)	Weight oz (g)	HRO Price
FT-60R	2m/70 cm	FM	7.2 VDC	5 W	1.5 A	125 mA	.16 µV / 12dB	4.3 (10.9)	2.3 (5.8)	1.2 (3.0)	13.5(370)	CALL
VX-3R	2m/70 cm @#	FM	3.7 VDC	1.5W††	1.3 A	120 mA	16 µV / 12dB	3.2 (8.1)	1.9 (4.7)	0.9 (2.3)	4.6(130)	CALL
VX-6R	2m/70 cm @#	FM	7.4 VDC	5 W	1.5/1.6/1.8 A	150mA	.16 µV / 12dB	3.4 (8.7)	2.3 (5.8)	1.1 (2.8)	9.5(270)	CALL
VX-8DR	50/144/220/440MHz#@	FM/AM	7.4 VDC	5 W ***	1.9 A	240mA	.16 µV / 12dB	3.7(9.5)	2.4 (6.0)	0.9(4.2)	8.5(240)	CALL
FT-1DR	2m/70 cm	FM/AM	7.4 VDC	5 W *	1. 7 A	240mA	.16 µV / 12dB	3.7(9.5)	2.4 (6.0)	1.1(2.8)	9.3(265	CALL
FT-2DR	2m/70 cm	FM/AM	7.4 VDC	5 W	1. 7 A	240mA	.16 µV / 12dB	4.3 (10.9)	2.4 (6.2)	1.2 (3.2)	10.9(310)	CALL
FT-270R	144-148 MHz#	FM	7.2 VDC	5 W	1.5 A	165mA	16 µV / 12dB	4.7 (12.0)	2.4 (6.0)	1.3 (3.2)	13.8 (390)	CALL
FT-277R	430-450 MHz	FM	7.2 VDC	5 W	1.5 A	165mA	.16 µV / 12dB	4.7 (12.0)	2.4 (6.0)	1.3 (3.2)	13.8 (390)	CALL

*Power output can be increased depending on the battery pack selected. #Extended Rx range @Cell phone blocked. **2 and 6m 4.5 W UHF.
††1.5 W 2m/1 W UHF. ***1.5 W on 220 MHz

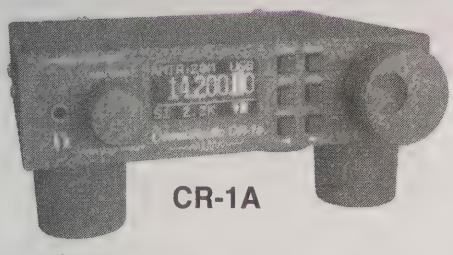
SOFTWARE DEFINED RECEIVERS

AeroStream Communications

SDR MW-HF
General Coverage Communications Receiver

New GUI for computer control, spectral display, 3-D waterfall!

$599.95 – HRO Discount Price



User Configurable Band Key:
- Amateur band selections: 160 m – 10 m.
- International broadcast bands 120 m – 11 m AM-SSB-CW.
- Manual or auto-mode selection (based on tuned frequency)
- LW: 150 - 500 kHz is included for experimental purposes.

VHF-UHF General Frequency Coverage and Performance:
- VHF: continuous coverage: 64.0 - 260.0 MHz.
- UHF: continuous coverage: 437.0 - 512.0 MHz.
- FM broadcast: nominal -88 dBm in 200 kHz bandwidth.
- VHF sensitivity 108.0 - 150.0 MHz: nominal - 98 dBm (or better) for 12 dB SINAD, 15 kHz filter bandwidth (5 kHz deviation).
- UHF sensitivity: nominal -86 to-98 dBm for 12 dB SINAD, 15 kHz filter bandwidth (5 kHz deviation).

VHF-UHF Band Plan:
- FM broadcast: 87.7 - 107.9 - monaural - 5 kHz audio bandwidth (76.0 MHz international).
- Aircraft bands: 108.000 - 136.975 MHz, AM auto-select -25 kHz channel steps.
- Amateur: 2 m, 1.25 m, 70 cm (upper portion starting @ 437.0 MHz).
- NBFM mode default with SSB-CW mode selects.
- Marine & NOAA weather radio
- Public service: 137.0 - 225.0: 12.5 and 25 kHz steps.
- FRS-GMRS 462 – 467 MHz, 25 kHz steps.
- General Coverage 467-512 MHz.

Receiver Architecture:
- HF: dual conversion (VHF-UHF: single conversion) with low -IF, I-Q digital sampling, 32-bit DSP with digital audio CODEC.
- DSP demodulation algorithms: DSB-AM, SSB, CW, WBFM, NBFM.
- User selectable, DSP fixed bandwidth channel filtering selections.

Audio System - Digital CODEC:
- Speaker driver: 0.8 W into 8 Ohm load.
- Internal 2.5" diameter, mylar-cone communications grade speaker.
- External monaural speaker jack (3.5 mm stereo jack - back panel).
- Headset Driver: 40 mW into 16 Ohms. (3.5 mm stereo jack - front panel).

• Antenna Inputs:
- LW-MW-HF port: 50 Ohm – BNC (female)
- VHF-UHF port: 50 Ohm – BNC (female).
- LW-MW-HF Port: 1000 Ohm – 3.5 mm jack – retained S/N's 601-749. Eliminated starting with S/N 750.

Display:
- 1.5" diagonal - 64 x 128 OLED display with EMI-filtered lens. Readable outdoors (not in direct sunlight) and manually dimmable.

Power Supplies:
- Power Jacks: powered-USB and 6-18 VDC (2.1 mm diameter-center pin (+) x 5 mm diameter barrel).
- Internal lithium-ion rechargeable battery.
- 6-8 hour capacity with full speaker volume.
- 10-12 hours for headset and normal speaker volume.
- Both supply inputs automatically charge the optional internal battery with the radio powered ON or OFF.

Power Consumption:
- < 1.0 Watt headset at normal speaker volume.
- < 1.2 Watt maximum - full speaker volume.

USB Mini-B 2.0 Jack:
- Automatically charges internal battery while maintaining max USB power use < 2.5 Watts.
- Software updates via 'Dropbox' with automated email notifications.
- I-Q data and radio controls via USB port.
- CommRadio supplied basic 200 kHz spectrum-scope PC GUI (graphical user interface).

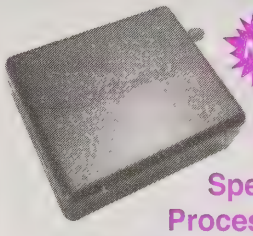
Mechanical:
- Overall size: 5.65" W x 2.45" H x 6.10" D (including knobs, jacks , feet).
- Weight: 1 lb. – 8 oz.

ESD Protection:
- ESD diodes on antenna port(s), power jacks, USB port, keys, and knobs.

Hardware Design Limitations:
- LW (150 kHz - 480 kHz): Designed to tune down to 500 kHz. The tuner is programmed to provide tuning to 150 kHz. However, there is no dedicated pre-selector in this range. The IF is also in this range and signals from other bands can be heard. Performance is not guaranteed in this range and is provided for experimental purposes. Good performance has been reported from one owner who uses an external LW pre-selector.

Designed and manufactured in USA. Limited 1 year warranty: parts, labor, workmanship.

SDRplay



RSP
Radio Spectrum Processor
SDR Receiver

$149.95 – HRO Discount Price

The SDRplay RSP is a powerful wide-band full-featured Software Defined Receiver which covers all frequencies from 100 kHz up to 2 GHz.

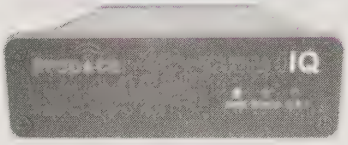
All it needs is a PC (supported platforms: Windows, Linux, Mac, Raspberry Pi 2, and Android) along with an appropriate antenna. Combine that with the power of readily available SDR receiver software and you are on your way to enjoy all modes of operation while monitoring up to 8 MHz of spectrum at a time. SDRplay offers an open API, allowing developers to create new demodulators or applications around the platform.

Amateur radio operators will enjoy all modes of operation for Ham bands ranging from experimental LF, through all the HF bands, VHF, UHF, and up to the 23 cm band.

- Robust and strong plastic case.
- Continuous coverage from 100 kHz to 2 GHz.
- 12-bit ADC silicon technology (not another 8-bit dongle!).
- Built-in high-performance front-end filters.
- Up to 8 MHz bandwidth.
- Good sensitivity and selectivity.
- Low noise floor.
- Simple USB interface; type B socket.
- SMA antenna socket.
- Powers over the USB cable. Ideal for portable operation.
- No need for an up-converter.
- Simultaneous entire amateur band monitoring possible.
- Works with all the popular SDR software (HDSDR, SDR# and SDR-Console).
- Compatible with existing open source radio software.
- ExtIO based plugin available
- Compatible with Mirics Radio & TV software.
- Software upgradeable for future standards.
- Strong and growing software support network.

RFSpace

The next chapter in #connected software defined radios.



CloudIQ
Wideband Digital Radio
HRO Price $629.95

The Cloud-IQ high performance software defined receiver from RFSPACE has two modes of operation:

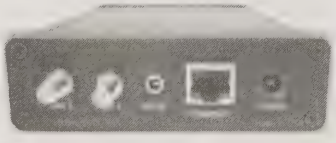
The IQ mode offers 24 bit IQ streaming to the PC over ethernet. This mode uses RFSpace SpectraVue software or third party programs like SDR-Radio, SDR# and GNU radio.

The stand-alone "Cloud" mode includes a built-in internet server. In this mode, the radio performs the tuning and demodulation of signals and transmits the demodulated information back to a PC, OS-X, Linux or Android client anywhere in the world.

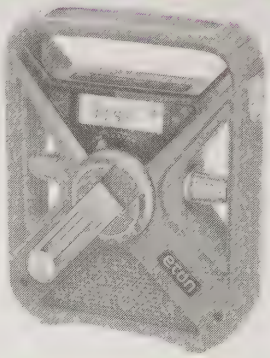
CloudIQ offers 1.2288 MHz IQ sample rate; uses ethernet interface; can be placed far away from computer; broad frequency coverage of 9 kHz to 56 MHz; includes low bandwidth cloud mode for access anywhere in the world.

It is powered by a small power supply or USB powered; includes an internal adjustable trigger for capture of repetitive signals (pulsars, Codar, chirps) and has 2 antenna input ports for remote or local selection of two antennas. All HD2, HD3 products better than 90 dBc at -1dB below clipping point. It includes a wideband 56 MHz wide spectrum analyzer mode and a built-in TCXO. There is an optional RS-232 3.5 mm to DB9 cable for external radio control.

Includes: Cloud-IQ receiver; USB power cable; 5V 1 Amp USB output power supply with US blade connector 240 V capable; Ethernet cable; SpectraVue software CD; SDRanywhere application for Android, PC and Mac OS.



GRUNDIG etón®



Emergency Radio
FRX-3
$59.95 – HRO Price

This all-purpose, rechargeable weather alert radio with solar panel and hand turbine power generator will keep you in the know, on alert, and well connected. No emergency kit is complete without it.

When the "Alert" function is on, the radio will automatically broadcast emergency weather alerts for your area such as hurricanes, tornadoes and severe storms.

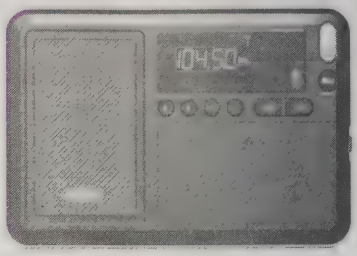
The digital radio covers AM / FM / NOAA weather band. There's an alarm clock and an AUX-input to play your own tunes on the speaker or headphones.

The FRX3 powers up via several options. Crank the hand turbine for one minute and you'll produce enough power for 15-20 minutes of music, news and weather. Or simply charge it in the sun using the built- in solar panel. Or use the mini USB cable to charge the FRX3's built-in rechargeable battery or pop in a couple of AAA batteries. To charge your smartphone, simply plug it into the USB port. Power will automatically "dump charge" to your phone, just like plugging into the wall.

The FRX-3 has a bright LED flashlight, red flashing beacon, and a glow-in-the-dark locator.

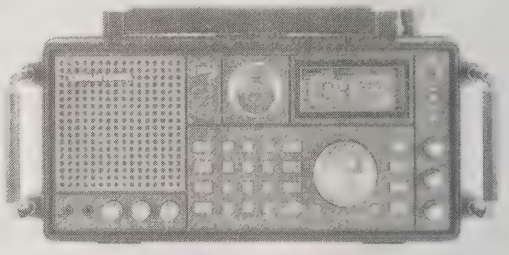
Fax Numbers
Pages 112-113

Traveler III
Global Traveler
$59.95 – HRO Price



The Traveler III receives every radio wavelength— AM (MW), FM, longwave (LW) and shortwave (SW)—at home or abroad. It's the Go Anywhere, Hear Everything AM / FM / LW and shortwave radio.

- Manual, auto, by memory or ATS (auto tuning storage).
- High-contrast, bright orange LCD display.
- The Radio Data System (RDS) enables FM broadcasters to deliver more than just an analog audio signal, but also to transmit digital data, like the station's call letters, style of music, song title, artist and more.
- Internal antenna for AM. For enhanced FM and SW reception, the radio features a telescoping antenna.
- Features local and world time settings, radio and buzzer alarm clock settings, sleep timer and snooze light. It even displays the temperature to help you prepare for the day.
- Use 4 AA batteries or plug a 6V AC adaptor into the DC jack (sold separately).



Satellit 750
$299.95 – HRO Price

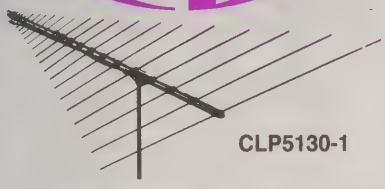
When you want full shortwave capabilities and a classic design, choose the Satellit 750. Advanced DSP technology and a 360-degree rotating AM antenna enhance the radio's sensitivity. Listen to AM, FM, shortwave with SSB, and aircraft band. Program up to 100 choices. You can connect your MP3 player for even more options.

- AM, FM, aircraft band (117-137 MHz) and shortwave (1711-30000 kHz).
- Set 9/10 kHz AM tuning; set FM tuning range.
- Single side band (SSB).
- Using DSP technology to enhance the highest sensitivity and selectivity with excellent S/N ratio and anti-interference results in good reception sound quality.
- 360 degree rotating AM antenna.
- Auto / manual / direct frequency key-in and station memory tuning.
- Dual alarm clock function.
- Mute function.
- 12K AM output socket.
- Auto tuning storage function (ATS) for FM / AM / shortwave.
- 100 station memories (each band 100 memories, 500 customizable).
- Line in socket (can be used as a speaker for MP3 players).
- Line out socket (radio broadcasting can be transferred to other devices).
- External antenna jacks for both AM and FM.
- USB (5 V) outlet for MP3 or mobile phone charging function.
- AC/DC 6V power supply included.

SWL / SCANNER ANTENNAS

Log Periodic

CREATE



CLP5130-1

The CLP5130 antennas are high gain, wide band VHF/UHF log periodic beams for horizontally polarized base station use. Covers amateur bands from 50–1300 MHz, FM broadcasting, scanning, VHF / UHF TV, air band communications, government and business bands.

Forward gain is 10 to 12 dB – 10 to 16 times the gain of a nondirectional discone type antenna. The VSWR is less than 2.0:1 across the band. The high-quality aluminum antennas have a boom design that allows movement of the phasing line. Distortions in the vertical and horizontal planes are minimized and element adjustment is not necessary. The boom-to-mast bracket is made of a lightweight and rugged magnesium alloy.

Create Antennas

	CLP 5130-1	CLP 5130-2
Frequency	50-1300 MHz	108-1300 MHz
No. Elements	23	19
Power PEP	500W	500W
Forward Gain	10-12 dBi	10-12 dBi
Front/Back	15 db	15 db
Longest element	9' 10"	4' 6"
Boom length	5' 9"	4' 6"
HRO Price	$459.95	$369.95

Wideband Mobile

SCANNER MASTER

Spectrum Force Mag Mount Mobile

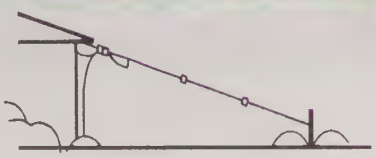


This wideband antenna comes with a BNC or SMA connector. Covers 25-1300MHz. Height is 17" including base. BNC fits most scanners.
HRO Price $19.95 / BNC
HRO Price $19.95 / SMA

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

SWL Antennas

ALPHA DELTA



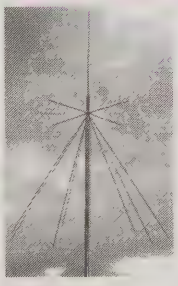
DX-SWL

The DX-SWL is tuned for the most popular SWL bands (13, 16, 18, 19, 21, 25, 31, 41, 49, 90 and 120 meters). It can be used as a multi-band transmit antenna with the appropriate antenna tuner. Length is 60 feet. Requires a single support. Standard coax connects antenna to your radio. Feed point is 50 ohms. SO-239 connection. **HRO Price $119.95**

DX-ULTRA

The multi-element DX-ULTRA has extremely low-noise performance. Tapered wing design allows broadband operation. Configure as dipole, inverted vee, or sloper. Covers MW, tropical, SW, government, military, embassy, maritime, aircraft, and commercial frequencies. 80 feet long. Made with ISO-RES inductors and parallel wire elements. Uses the Delta-C center insulator, Delta-CIN end insulators, and 12 gauge solid copper wire with grey PVC insulation. Elements are separated by grey PVC rod. **HRO Price $159.95**

Discone Antennas



MFJ

MFJ-1868

Ultra wide-band antenna receives 25-1300 MHz. Perfect for scanners. Transmit 50-1300 MHz. Handles 200 W. Ideal for 2 / 6 meters, 220 / 440 MHz. Includes SO-239 connector, 50' coax, stainless steel elements and mounting hardware.

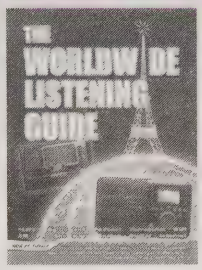
DIAMOND ANTENNA



D-130J / D-130NJ Super Wideband Discone

Monitor 25-1300 MHz. Transmit on 50, 144, 430, 1200 MHz. All stainless steel. Input power 200 Watts maximum. Impedance: 50 ohms. VSWR: 1.5:1. Length: 1.7 meters. Mounts on 1" to 2" masts. D-130 UHF and D-130NJ Type-N connector. **HRO Prices D-130J $94.95 D-130NJ $95.95**

SWL Guide



Worldwide Listening Guide

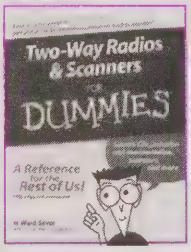
7th Edition
by John Figliozzi

The expanded 7th Edition WLG explains radio listening in all of today's formats – "live," on-demand, WiFi, podcast, terrestrial, satellite, internet, digital, and, of course, AM, FM and SW. Includes a comprehensive program guide to what can be heard how, when, and where. Spiral bound to open in a flat, easy-to-use format. **HRO Price $24.95**

Scanner Books

Two-Way Radios & Scanners for Dummies

HRO Price $21.99



HRO stocks many books with frequencies for localities around the country. Contact your nearest HRO for details.

Scanner Software

BuTel

Scanner software is essential for the proper programming of today's complex scanners. Butel's user-friendly Basic software allows for programming and, with the PRO versions, control and logging for scanners. Limited versions offer programming only at a special price. Auto-download frequencies and trunking with a RadioReference subscription for most versions. Requires Windows 98 or later.

HRO Prices Basic version (B) $39.95
Pro version (P) $69.95

Uniden Bearcat Software

ARC-XT	(B) (P)	BC346XT, 396XT, 15XT, 996XT
ARC996	(B) (P)	Bearcat BCD-996T
ARC396	(B)	Bearcat BCD396T
ARC246	(B)	Bearcat 246T
ARC250	(B) (P)	BC250, 296, 785, 796
ARC780	(B)	Bearcat 780XLT

AOR Receivers

ARC8200V2 AR8200V2 $69.95

Icom Receivers

ARC3 R-3 $39.95



BCD-536HP
TrunkTracker V Mobile
$599.95 – HRO Price

- APCO 25 Phase I / II.
- Motorola, EDACS, LTR trunking.
- HomePatrol operation.
- WiFi Link for remote operation.
- USA / Canada radio database.
- Zip Code selection.
- Fire tone-out alert.
- Temporary avoid.
- CloseCall® RF capture.
- System channel / number tagging.
- DCS / CTCSS rapid decode.
- Audio AGC.
- S.A.M.E weather alert.
- Backlit keypad & LCD.
- 4 GB memory.
- Enhanced dynamic memory.
- USB connectivity.
- PC programming and cloning.
- Covers 25-512, 758-824, 849-869, 894-960, 1240-1300 MHZ.
- Includes antenna, DC-adapter, USB cable, three-wire harness, mounting bracket and hardware.

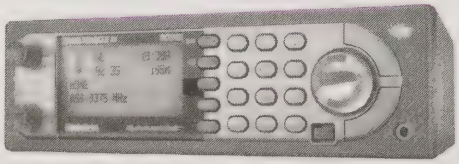
Mobile Trunking Scanner with GPS Support and APCO-25



BCD-996P2 $CALL – HRO Price

- 25,000 dynamically allocated channels.
- Location-based scanning.
- TrunkTracker V.
- APCO 25 Phase I & II.
- Links to optional GPS.
- Dual color display.
- Multi-site trunking support.
- Temporary lockout.
- Dangerous crossing or road and POI alert.
- DIN-E mounting.
- Close-Call™ RF capture technology.
- Public safety scanner.
- PC control/programming (free download).
- USB connector.

BearTracker Mobile Trunking Scanner with GPS Support



BC-T15X $CALL – HRO Price

- Frequency coverage 25-512, 758-960 (cell band blocked), 1240-1300 MHz.
- 2500 dynamically allocated channels.
- Up to 400 systems.
- Location-based scan.
- TrunkTracker III.
- 100 system quick keys.
- BearTracker™ warning system.
- Close Call™ RF capture technology.
- Dangerous crossing, dangerous road and POI alert.
- Public safety scanner.

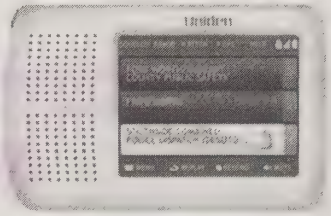
Mobile Scanners

Home Patrol II
$CALL – HRO Price

- Digital touch screen scanner.
- USA & Canda database.
- APCO Project 25 Phase I & II.
- USB-source charging.
- No subscription.
- Simple programming



- Enter your zip code to selects channels in your area.
- 3.5" daylight viewable display.
- Sentinel Windows PC software included.
- S.A.M.E. emergency / weather alert.
- TrunkTracker IV.
- Monitor public safety, local government, amateur radio operators, and more.



Home Patrol
$CALL – HRO Price

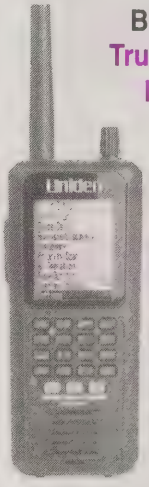
- Enter your zip code to see a list of agencies you will hear in your local area.
- Hear emergency calls, weather, spotters, and public safety activities.
- Touch screen entry on 3.5 inch LCD screen.
- AM / NFM / FM.
- 4 NiMH 2300 mAh batteries included.
- While on the road you can monitor road and traffic conditions through local agency broadcasts.
- Plug in an optional GPS to monitor-channels wherever you are.
- Portable battery operation.
- Covers 25-53.995 MHz, 136-512 MHz, 758-960 MHz.
- MicroSD type memory slot.

More info @ www.hamradio.com



BCD-325P2
TrunkTracker V Handheld
$CALL
HRO Price

- APCO P25 I and II.
- 25,000 channels.
- Close Call™ RF capture.
- Band Scope
- Temporary lockout.
- Location-based scanning.
- Audio AGC.
- Channel number tagging.
- DCS / CTCSS rapid decoding.
- S.A.M.E. weather alert.
- Backlit keypad & LCD.
- Dynamic memory.
- Narrowband reception.
- 12 service searches: public safety, news, ham radio, marine, railroad, air, CB radio, FRS / GMRS, racing, FM broadcast and itinerant.
- PC programming and control (with 3rd party software, not included).
- Frequency coverage: 25-512 MHz, 758-824 MHz, 849-869 MHz, 894-960 MHz
- Includes: batteries, antenna USB cable, hand strap, and owner's manual.



BCD-436HP
TrunkTracker V Handheld
$499.95
HRO Price

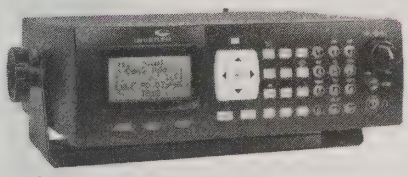
- APCO 25 Phase I / II.
- HomePatrol operation.
- 4 GB memory.
- USB connectivity.
- CloseCall® RF capture.
- Audio AGC.
- S.A.M.E weather alert.
- Backlit keypad & LCD.
- Motorola, EDACS, LTR trunking.
- USA/Canada radio database.
- Enhanced dynamic memory.
- System channel / number tagging.
- DCS/CTCSS rapid decode.
- PC programming and cloning.
- Covers 25-512, 758-824, 849-869, 894-960, 1240-1300 MHZ.
- Includes antenna, USB adapter, 3AA NiMH batteries, hand strap, SMA-BNC antenna adapter.

WHISTLER

Analog Scanners

WS1065
Analog Desktop Scanner

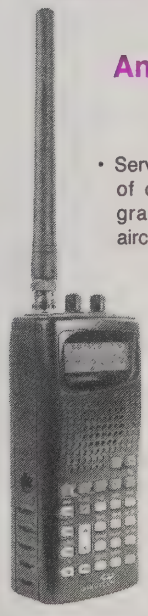
HRO Price $299.95



- Object oriented user interface.
- Menu driven programming with context-sensitive help.
- SKYWARN.
- Multi-system trunking.
- High speed PC interface.
- SAME / FIPS weather alert.
- Spectrum sweeper.
- Automatic adaptive digital tracking.
- Used as mobile or desktop.
- 12-volt wiring harness and DIN-E adapter shell included.

WS1065 Bands Received

MHz	Band
29-54	VHF Low
108-136.99166	Aircraft
137-174	VHF High
216-225	VHF, Ham
225-406	Government, Military
406-512	UHF
700 Bands	Public Service
800 / 900 Bands	Public Service
1240-1300	Ham



WS1010
Analog Handheld Scanner

HRO Price $89.95

- Service banks: easily locate types of calls by searching preprogrammed marine, fire, police, aircraft, ham, and weather banks.
  - 200 channels.
  - SKYWARN.
  - Spectrum sweeper.
  - Data cloning, PC programmable and priority channel.
  - SAME / FIPS weather alert.
  - 13 preset data filters plus two user presets.

WS1010 Receives

MHz	Band
29-54	VHF Low
108-136.99166	Aircraft
137-174	VHF High
380-512	UHF Bands

Digital Scanners

WS1098
Digital Base / Mobil EZ Police Scanner

NEW!



HRO Price 519.95

- 200 scanlists; sets plus a special SKYWARN scanlist.
- Complete Radio Reference USA and Canada on SD card.
- Upgradeable CPU firmware, DSP firmware and library.
- SD card. Full USB interface. PC application software included.
- SKYWARN, SAME and All Hazards Weather Alerting.
- Multi-System Trunking, Spectrum Sweeper.
- PC programmable, PC software included.

WS1098 Spectrum Sweeper

MHz	Band
25-54	VHF Low Band
108-137	VHF Aircraft Band
137-174	VHF High Band
216-300	220 MHz Commercial Amateur Band
300-406	UHF Military Air Band
406-470	UHF Band
470-512	HF-T Band
764-782	700 MHz Band
791-797	700 MHz Band
806-869	800 MHz Band
894-1300	900 MHz Band
	23 cm Amateur Band

Public Safety

MHz	Band
33.4-46.5	VHF Low
151-170	VHF Aircraft
453-467	UHF High
764-782	700 MHz
791-797	700 MHz
806-869	800 MHz

Included Accessories:
Desktop/Mobile Scanner with Remote Head, Pull up BNC Antenna,USB Cable, SD Card (Installed in the Scanner), User's Guide, Quick Start Guide, PC Software included on SD Card, DC Power Cable, Special 6½ ft. LAN Cable for Remote Head, Mounting Bracket and Hardware Kit, AC Adapter, Remote Head Mounting Bracket and Screws

Digital Scanners



NEW!

WS1088
Digital Handheld EZ Police Scanner

HRO Price $449.95

Multi-system trunking scans most common analog trunked radio system signaling formats, including APCO P25 Phase I and II, Motorola, EDACS and LTR. Both talkgroup and individual call monitoring are supported.

Object oriented menu-driven user interface provides common data entry, browsing, and control methods for every scannable object with support for millions of stored objects, limited only by Micro SD card capacity.

- Built-in discriminator output.
- Upgradeable CPU firmware, DSP firmware and library.
- Full USB interface.
- SAME / FIPS weather alert. SKYWARN.
- Spectrum sweeper.
- Built-In clock / calendar.
- Scan sets. 200 scan lists.
- Powerful PC application software included.
- Signal strength meter.

WS1088 Spectrum Sweeper

MHz	Band
25-54	VHF Low Band
108-137	VHF Aircraft Band
137-174	VHF High Band
216-300	220 MHz Commercial Amateur Band
300-406	UHF Military Air Band
406-470	UHF Band
470-512	UHF-T Band
764-782	700 MHz Band
791-797	700 MHz Band
806-869	800 MHz Band
894-1300	900 MHz Band
	23 cm Amateur Band

Public Safety

MHz	Band
33.4-46.5	VHF Low
151-170	VHF Aircraft
453-467	UHF High
764-782	700 MHz
791-797	700 MHz
806-869	800 MHz

Included Accessories:
Digital Handheld Scanner, Antenna, USB Cable, Micro SD Card, Swivel Belt Clip, User Manual, Quick Start Guide. System Requirements: works only with Windows Operating System

Farallon Electronics



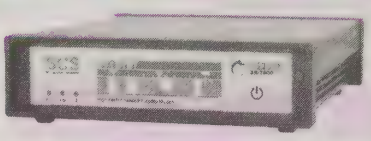
PACTOR-4
DR-7400
HRO Price $1498.00

The DR-7400 offers a lower priced entry to the P4dragon modem class. The DR-7400 has been optimized for use with the new high-end data transmission mode PACTOR-4.

The DR-7400 is software compatible to the PTC-II series and to the DR-7800 so that existing PACTOR software (AirMail, RMS Express, Alpha etc) can continue to be used.

Due to the plug compatibility of the radio ports, a change from the tried and tested PTC-II technology to the innovative P4dragon technology is very easy. Change over the plugs, turn on, and enjoy PACTOR-4!

- Has many of the same features as the DR-7800.
- Backwards compatible to PACTOR-1/2/3. Automatic negotiation during link setup.
- Noticeably improved reception with PACTOR-2 and PACTOR-3.
- Operating Modes: PACTOR-4, PACTOR-3, PACTOR-2, PACTOR-1, weather-FAX (receive), GPS / RTTY / NAVTEX decoder.



PACTOR-4
DR-7800
HRO Price $1849.95

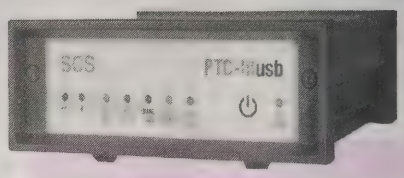
The DR-7800 P4dragon is the no compromise further development of the legendary PTC-II, which was designed for professional use and for the ambitious amateur radio enthusiast. The DR-7800 has been optimized for use with the new high-end data transmission mode PACTOR-4.

The DR-7800 is software compatible to the PTC-II series so that existing PACTOR software (AirMail, RMS Express, Alpha etc.) can continue to be used.

- Operating Modes: PACTOR-4, PACTOR-3, PACTOR-2, PACTOR-1, weather-FAX (Receive), GPS decoder.
- Display: 256 x 64 pixel OLED, blue, high contrast, excellent readability, no viewing angle problems, display of spectrum and much more.

PACTOR-4

- Max net speed 10500 bps.
- 1.5-3 x faster than P3.
- Backwards compatible.
- 2400 Hz bandwidth.
- Highly adaptive.
- Highly resistant to interference.
- 6 auto notches.
- Adaptive equalizer.



PTC-IIIusb
HRO Price $1149.95

As successor to the beloved PTCIIusb it is mainly designed for PACTOR-III, thus allowing worldwide E-mail traffic via shortwave. It is also suitable for all other available modes, e.g. with Packet Radio, RTTY, weather FAX reception or decoding CW.

The PTC-IIIusb is software compatible to the PTC-IIusb so that existing software (AirMail, RMS Express, Alpha etc.) can continue to be used.

The PTC-IIIusb is not only an excellent HF-modem but also a powerful multimode controller. It supports the following modes: PACTOR-I/II/III, PR, (also RPR), RTTY, CW, PSK31, FAX, SSTV, AMTOR, NAVTEX, APRS®-Beacon.

Remote control your transceiver directly from the PTC-IIIusb for really comfortable operation. The PTC-IIIusb TRX interface is compatible with equipment from Icom, Yaesu, SGC, and Kenwood.

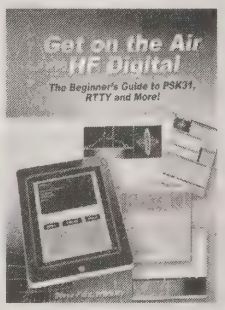
PACTOR-III as standard

- Widespread proven technique (Winlink, SailMail etc.).
- Automatic frequency correction.
- Max. 5200 bps net.
- High adaptivity.
- High interference immunity.
- Max 2400 bandwidth.

Farallon Cables / Accessories

Model	Description	HRO Price
	Miscellaneous	
9001	6' power cable	$12.95
8120	1200 baud packet cable	$43.95
8050	9600 baud packet cable	$43.95
	Control Cables	
8080	Modem to Kenwood or Yaesu radio, SCS 13pin DIN to DB9 female, 1.5m.	$33.95
8081	Modem to Icom radio, SCS 13pin DIN to 3.5mm Mini Phone Plug, 6`.	$33.95
8083	Modem to Icom or SGC radio, SCS 13pin DIN to male DB9, 5`.	$33.95
8085	Modem to Yaesu FT847 radio, SCS 13pin DIN to DB9 female, 1.5m	$33.95
8130	Modem to Yaesu radio, SCS 13pin DIN to 8pin Mini-DIN, 2m.	$43.95
	Audio Cables	
8050	Modem to Yaesu radio SCS 5 pin DIN to 6 pin mimi DIN 9600 baud	$43.95
8120	Modem to Yaesu radio, SCS 8pin DIN to Yaesu 6pin Mini-DIN, 2m 1200 baud.	$43.95
8123	Modem to Yaesu radio, SCS 8pin DIN to Yaesu 5pin DIN, 2m.	$43.95
8125	Modem to Yaesu radio, SCS 5pin DIN to 1/8" stereo phone plug.	$43.95
8127	Modem to Yaesu FT847 radio, SCS 5pin DIN to 1/8" stereo phone plug	$43.95
9090	Modem to Icom radio, SCS 8pin DIN to Icom 8pin DIN, 1.5m	$43.95
9095	Modem to Icom radio, SCS 8pin DIN to Icom 13pin DIN, 1.5m	$43.95
9096	Modem to Kenwood radio, SCS 8pin DIN to Kenwood 13pin DIN, 1.5m	$43.95
9097	Modem to Kenwood radio, SCS 8pin DIN to Kenwood 13pin DIN, 1.5m	$43.95

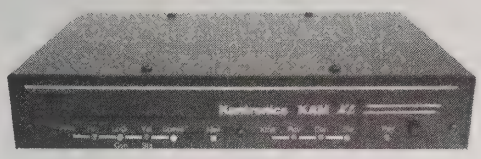
(see complete cable reference chart at www.farallon.us)



Get on the Air with HF Digital

Explore digital radio below 30 MHz! Here is a step-by-step guide that'll get you started. Written in an easy to understand, conversational style, this book will show you how to set up and operate your own HF digital station. It's a fun and easy way for beginners to get on the air! **Let's Build an HF Digital Station**
Exploring the three essential components of your station: a radio, a computer and a device that ties them together.
PSK31, RTTY and JT65
Hands-on instructions to get started with the three most popular HF digital operating modes today.
MFSK and Olivia
With these two modes you'll still be chatting long after the bands have supposedly gone "dead."
PACTOR
PACTOR is a great way to get your message through error free,
Plus articles from the pages of QST magazine!
HRO Price $22.95

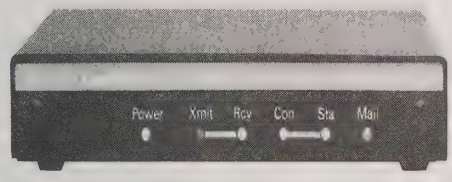
Kantronics



KAM XL™
Multi-Mode DSP Controller

HRO Price $409.95

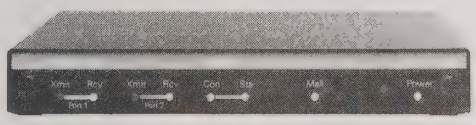
Kantronics' third generation multi-mode TNC is a state of the art design for operations on HF, VHF and UHF while supporting DSP modems and popular new modes of operation. The unit provides modes of Packet 300, 1200 or 9600 baud, G-TOR, Pactor 1, AMTOR ARQ, PSK31, RTTY, NAVTEX/AMTEX, ASCII, WEFAX and CW. It has a dual port mailbox and remote SYSOP access. It is GPS NMEA-0183 compatible and provides Kantronics Host Mode and KISS.



KPC-3 Plus
VHF / UHF TNC

HRO Price $199.95

This compact, low current TNC has become the work horse of packet radio today. It features multiple packet connects, digipeating for APRS® operations, WEFAX reception, a GPS mode for tracking, personal packet mailbox and more.

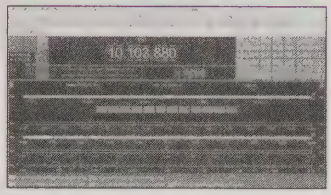


KPC-9612 Plus
128 Dual-Speed Dual-Port TNC

HRO Price $399.95

This is the rapid delivery model, supporting 9600 baud. It features both 1200 and 9600 packet ports, advanced APRS® digipeating (APRS® is a trademark of Bob Bruninga), (K-Net) networking, amateur beeper (paging), the ability to download EMWIN weather broadcasts and more.

Control Software



Ham Radio Deluxe

Ham Radio Deluxe (HRD) is an integrated Amateur Radio Software Suite. Five modules provide rig control, logging, digital communications, satellite tracking, and rotator control. Latest version 6.2.8 now available.
HRO Price $99.95

Ham Radio Deluxe Rig Control works through a richly featured full-screen interface and other products in the Ham Radio Deluxe Suite via a direct connection or TCP / IP remote access.

Ham Radio Deluxe Logbook provides QSO logging, DX cluster connectivity, callsign lookup, award tracking (with integration to LOTW, eQSL, and Ham Radio Deluxelog.net), and contesting. Microsoft Access and MySQL are supported with strong features for backup and recovery.

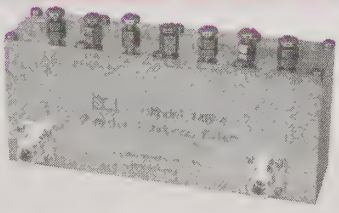
Digital Master (DM-780) provides most popular sound card digital modes with direct integration to HRD Logbook.

Ham Radio Deluxe Satellite Tracking provides satellite operations with rig control and Google Earth integration.

Ham Radio Deluxe Rotator controls more than 25 popular models of rotators.

VHF Bandpass Filter

OCI



Get rid of unwanted noise and give your 2 m receiver the best front end sensitivity. Reduce the squawks and squeals of intermod and protect from lightning. Good passband loss and out-of-band attenuation with excellent SWR. These filters are made to be transmitted through (tested to 160 Watts) and are available with UHF or Type "N" connectors.

HRO Prices: With Type "N" connectors $159.95; with UHF connectors $149.95.

RigExpert



WTI-1
Wireless Transceiver Interface

HRO Discount Price: $409.95

This revolutionary device wirelessly connects your transceiver to the Internet via a Wi-Fi network. Use your laptop to operate phone, CW, or digital modes from anywhere! (Optional interface cable required.)

Transceiver audio interface:
Analog audio interface is a connection to transceiver audio output (external speaker connector or line output) and transceiver audio input (microphone connector or line input). Audio interface enables operating digital modes, recording and playing voice, as well as other useful functions (such as measuring levels of a signal from the air) by using a computer.You may use a conventional headset on your computer to operate voice modes. A virtual sound card driver is provided to support operating digital modes.

CAT interface:
CAT (computer aided transceiver) system provides control of transceiver frequency, operating mode, and other functions by computer software. Normally, modern transceivers have serial (with various signal levels) link providing CAT interface. In the WTI-1, CAT interface port is seen as a COM port by computer software.

FSK output:
FSK (frequency shift keying) is a method of transmitting digital messages over radio primarily used in radioteletype (RTTY) mode. Most transceivers provide FSK modulator feature to make the RTTY signal stable and clear. A separate COM port is assigned for the FSK output with the RigExpert WTI-1.

PTT and CW output functions:
Transceivers provide PTT (Push To Talk) and CW (continuous wave) keyer inputs to allow setting the transmitter on or off and operating CW using external device (PTT pedal, CW bug or paddle, terminal node controller, or personal computer). In RigExpert WTI-1, PTT and CW outputs are assigned to the RTS and DTR lines of a separate COM port. In addition, the user may press the PTT button on the screen to activate transmission.

WinKey emulation:
To operate CW, you may use software which either directly manipulates the DTR line, or uses the WinKey protocol. A separate COM port is created in the system to support the WinKey data exchange.

West Mountain Radio — RIG / PC CONNECTION

A RIGblaster is the easiest way to connect your radio to your computer to operate PSK31, RTTY, WinMOR, Olivia, Packet and more! Chase DX easily using advanced JT65-A! Unrivaled simplicity, True FSK, True-keyed CW & CAT/CI-V Control – see why these are the World's Finest Digital Mode Interfaces! Includes DVD with more than 100 popular software programs. All RIGblasters are ground isolated and RF Filtered. Supplied with all the cables you need to get on the air. These models work with more than 2000 radio models. Kits are available for 4-pin round or RJ22 connectors.

RIGblaster Blue



The West Mountain Radio RIGblaster Blue is a completely integrated Bluetooth wireless interface. Use a Bluetooth headset with your radio. Provides safe, secure hands-free operation. VOX PTT is available in the headset mode. Pair with any compatible laptop or tablet for mobile operation. Use with Yaesu, Kenwood, Icom, Ten-Tec and Elecraft radios. Pairing radio to any compatible smartphone or tablet provides for mobile rig control of digital modes. (Compatible software is required.) Perfect for mixed mode nets plus PSK31, RTTY, WinMOR and Packet. Operate using over 100 popular ham radio sound cards (optional).
HRO Price $189.95



RIGblaster Advantage

The only RIGblaster with a built-in soundcard. It works with any radio using one USB cable to connect to PC. Built-in CAT or CI-V rig control interface. Mic input with PTT override and interrupt. Front panel transmit and receive audio and VOX delay controls. Fully isolated CW / FSK output for keyboard CW and RTTY. Includes (1) 3-ft 8-pin mic cable, (1) 6-ft 1/8" audio cable, USB cable, software programs DVD, and accessory kit. #58012-1288 **HRO Price $189.95**



RIGblaster Pro

RIGblaster PRO does everything you can possibly do with a computer and a radio! Two mic inputs allow for auto-switching and dual PTT inputs for foot switch, amplifier, or sequencer. Run any digital mode, microphone equalization, record QSO's, rig control, true keyed CW and FSK. PTT override and interrupt enables mic to override the computer or stop the computer program! Perfect for contesting or SSTV operation. Includes: (1) 3' mic cable, (1) 6' DB9M to DB9F serial cable, (6) 6' 1/8" audio cables, USB to RS232 male adapter, software programs DVD, and accessory kit. #58002-953 **HRO Price $269.95**

RIGblaster Plug & Play - Radio Versions

Model Number	Description	HRO Price
58011-962	RIGblaster Plug & Play Icom 8 pin ACC1	$119.95
58011-963	RIGblaster Plug & Play Icom 13 pin Din	$119.95
58011-964	RIGblaster Plug & Play YIK 6 pin Mini Din	$99.95
58011-965	RIGblaster Plug & Play Kenwood ACC 13 pin Din	$109.95

RIGblaster Accessory Cables

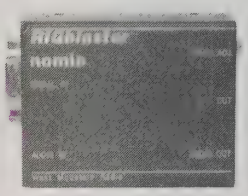
Model Number	Description	HRO Price
#58107-971	Rig Control Cable for Icom CI-V Radios	$9.95
#58108-972	Rig Control Cable for Yaesu Mini Din-8	$14.95
#58108-974	Rig Control Cable for Yaesu Din-6	$13.95
#58120-984	CW Cable Kit for RIGblaster Plus II, Plus, Plug & Play 6 ft.	$9.95

RIGblaster Plug & Play



Simple USB Plug and Play installation. One plug to the radio and one USB connection to the computer. Built in USB to serial converter for PTT, CW and CAT or CI-V rig control. USB powered, no additional power needed. Compact: great for mobile or QRP operation. Fully isolated CW keying output for direct keying of your rig's CW. Includes: radio specific 8-ft data jack adapter cable, 12" computer audio and USB cables and software programs DVD. #58009-963 **HRO Price $119.95**

RIGblaster Nomic



The RIGblaster Nomic is a small, simple, rugged and inexpensive sound card interface, perfect for Echolink®, portable, or field setups. Supplied with both a standard DB9 RS232 serial cable and USB cable interface (supported for Mac (OS9,10), Linux, Windows (98SE – Vista 32 and 64 bit)! May be used with old or new computers with your choice of USB or RS232 DB9 serial. No external power supply necessary so it is great for portable or QRP operation. Simple and inexpensive choice for a dedicated Internet link with the EchoLink® System. Includes: 3' 8-pin round circular mic cable, 3' RJ45 mic cable, USB to RS232 male adapter, 6' DB9M to DB9F serial cable, (2) 6' 1/8" audio cables, owner's manual, software programs DVD, and accessory kit. #58008-959 **HRO Price $59.95**



RIGtalk
USB Rig Control Interface

Control your radio using your PC. USB to TTL level interface for CI-V control: Icom, Ten-Tec, or Elecraft. CAT control for Yaesu and CI-V radios. Pocket-sized USB dongle. Design tested with most rig control and logging software. Compatible with USB 2.0 or lower. Includes software programs DVD.
RIGtalk 58201-1004 **HRO Price $54.95**
Order pre-packaged with radio cable:
RIGtalk for ICOM CI-V 58202-1005
HRO Price $56.95
RIGtalk for Yaesu Mini Din-8 58203-1006
HRO Price $61.95
RIGtalk for Yaesu Din-6 58203-1007
HRO Price $64.95

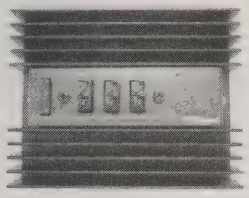
DC POWER ACCESSORIES

Super PWRgate PG40s



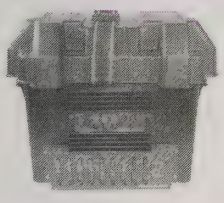
12 volt uninterruptable power switch that can supply up to 40 amperes continuously from either a power supply or a battery, and can also charge the battery with its high performance charger. Connected equipment will instantly switch to battery during a power blackout or power supply failure.#58403-1046 **HRO Price $139.95**

ISOpwr



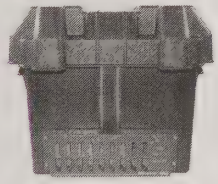
ISOpwr is a solid-state switch using a high powered FET. It turns on when the car's alternator is running and turns off when it is not. The switching point is 13.5 volts. Safely handles 40 amperes and is protected with a 40 ampere ATC blade fuse. Includes three sets of Powerpole® connectors. #58401-1044 **HRO Price $89.95**

DC-to-GO with 4008 & Super PWRgate

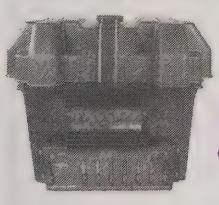


Provides easy-to-use portable DC power. Takes group 24 size battery (sold separately). Tough polypropylene battery box (inside dimensions: 11 1/8 x 7 3/8 x 10 1/8"). RIGrunner 4008 (conveniently mounted to battery box) and Super PWRgate PG40S (conveniently mounted to battery box). #58513-1381 **HRO Price $249.95**

DC-to-GO with RIGrunner 4008



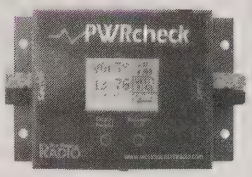
#58513-1061
HRO Price $134.95



DC-to-GO with RIGrunner 4007U & Super PWRgate PG40S

Super PWRgate provides easy-to-use portable DC Power. Takes Group 24 Size Battery (sold separately). It includes a RIGrunner 4007U (conveniently mounted to battery box) and Super PWRgate PG40S (conveniently mounted to battery box). Optimized for use with gelled & AGM type batteries, but will keep flooded lead acid and marine type batteries near full charge as well. Solid, durable aluminum construction includes mounting holes for convenient, secure use in mobile units. Uses Anderson Powerpole® connectors. #58513-1577 **HRO Price $259.95**

PWRcheck



Provides display of voltage, current flow in either direction, wattage and amp-hours. Measures 0 V to 60 V (less than 8 V requires USB power to PWRcheck), 40 A continuous load. Accurate to within +/- 10 mV, +/- 10 mA. Resolution: 10 mV, 10 mA. Backlit graphics LCD displays data in digital, analog and bar graph formats. USB computer interface for configuration and log data download. Programmable alarm conditions for over-current, over / under voltage, amp hours. Uses Powerpole® connectors. #58430-1286 **HRO Price $179.95**

PWRguard Plus



Automatic safety switch turns off if voltage exceeds 15 volts or drops below 11.0 volts. Turns back on when voltage is in safe operating range. Momentary voltage dips below 11.0 volts are ignored to prevent false tripping while transmitting. Rated for 40 A maximum while transmitting, 30 A continuous duty. Soft turn-on / turn-off solid state switch protects radio and reduces inrush current – no relay contact bounce! Remote on / off capability. Indicator LEDs and audible alarm notify user when safety switch turns power off. User may disable buzzer. Uses Anderson Powerpole® connectors #58402-1045 **HRO Price $114.95**

RIGrunner Power Distribution Panels

RIGRunners are the most convenient and safest way to connect all your 12 volt equipment. Uses Anderson Powerpole® – ARES, RACES, RSGB standard. Polarized and color keyed. 40 Amps total (8012 is 80 Amps total). Outlets fused with assorted ATC / ATO automotive fuses. Blown fuse LED indicators. For home and mobile installations. 6-foot input cable, #10 AWG with 1/4-inch terminals. (#8 AWG for 8012). "Complete" versions include Powerpole® packs. **Alternate voltage versions of RIGrunners (24-48 VDC) are available! HRO Price $CALL**



RIGrunner 4004U
40 amp, 4 outlets. 2 USB ports with 4 A charge. 6 pairs of 30 A Powerpole® sets. #58315-1043 **HRO Price $79.95**



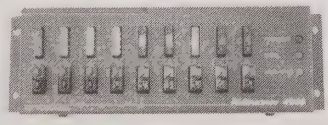
RIGrunner 4005
40 amp, 5 outlets. 6 pairs of 30 A Powerpole® sets. #58312-1039 **HRO Price $64.95**



RIGrunner 4005H
40 amp, 5 outlets horizontal. 6 pairs of 30 A Powerpole® sets. #58312-1041 **HRO Price $69.95**



RIGrunner 4007U 40 amp continuous duty. 7 fused outlets. Automatic supply voltage and load current measurement shown on a 3 x 7 segment display. Automatic shut off on high (HVD) or low voltage condition (LVD). Intelligent USB port for charging iPhone, Android and other USB devices. #58313-1561 **HRO Price $169.95**



RIGrunner 4008 40 amp, 8 outlets. LED and audible alarms. 6 pairs of 30 A Powerpole® sets. #58307-1035 **HRO Price $84.95**

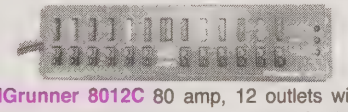


RIGrunner 4008H 40 amp, 8 outlets horizontal. 12 pairs of 30 A Powerpole® sets. #58307-1037 **HRO Price $89.95**

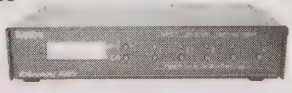
NEW!



RIGrunner 4010S+ 40 amp, 10 outlets. One master outlet and nine switched with LED and audible alarms. PWRguard shut off, internal USB port, remote access via USB port to turn on/off. Jumper for power saving mode. 12 pairs of 30 A Powerpole® sets. #58303-1601 **HRO Price $139.95**



RIGrunner 8012C 80 amp, 12 outlets with LED & audible alarms. 12 pairs of 30 A Powerpole® sets. #58301-1029 **HRO Price $159.95**



RIGrunner 4005i Remote Control

Remotely monitor and control your DC powered systems from any Internet-ready mobile device or PC. 12 VDC power distribution delivers up to 40 amps total through 5 outlets while transmitting. Each outlet features independent on / off control and user configured current trip point, 1 A to 40 A. RJ45 ethernet port standard. WiFi option available. #58312-1353 **HRO Price $259.95**

RADIO REMOTE CONTROL

REMOTERIG

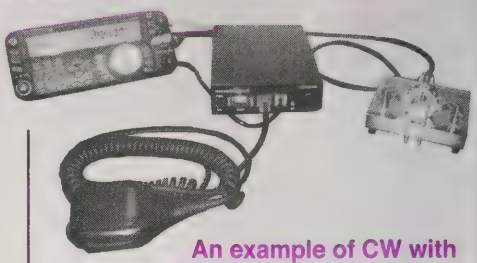


The Ultimate in Remote Control

Now with Dual (Stereo) Receiver and Includes 12 V Power Supply

Remoterig RRC-1258-MKII-S-Set

$489.95 – HRO Price for the Set



An example of CW with remote controlled Radio

The Remoterig RRC-1258-MkII-S-Set was developed to control Amateur Radio stations remotely via the Internet in a user friendly and cost-effective manner.

Remoterig units are used in pairs; one unit is connected to the radio, and the other to the control equipment. The system is unique in that no PC is needed; both voice and data communications are handled by the two units.

The RRC-1258-MkII-S-Set can be configured to work with almost all ham equipment currently available from Icom, Kenwood, Yaesu, and Elecraft. Remoterigs are especially useful in situations where you are (1) not allowed to install antennas at your home location, (2) the noise level is so high that a normal signal exchange is not discernible, (3) you want to build an antenna system too large for your local urban area, or (4) you do not want to be dependent upon a PC for the remote control.

The ultimate functionality of the Remoterig RRC-1258-MkII-S-Set can be experienced when the system is used with radios having detachable front panels such as the Kenwood TS-480, TS-2000, or Icom IC-706 series. Simply replace the cable between the control panel and the radio with the Remoterig system. The Yaesu Twin version and Electric K3 Twin versions are available.

The system also works very well with more traditional remote control situations from PC-based control software, like Ham Radio Deluxe; the Remoterig boxes solve the voice and data problems, but you do need a PC for the control software itself in this particular setup.

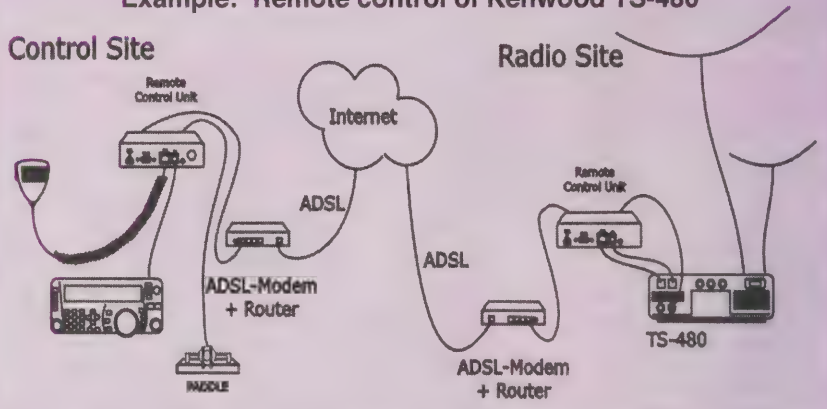
The Remoterig system itself will not introduce any latencies, and those introduced by the Internet will rarely be a noticeable problem. The Remoterig system also includes a unique solution for operating CW over the Internet with, among other things, a built-in CW keyer that uses a standard 3.5 mm stereo plug.

The Remoterig RRC-1258-MkII-S-Set is connected to the Internet primarily via 10 or 100 Mbit Ethernet cable, and fixed connections like DSL, cable, or WLAN. 3G based mobile solutions will also work, although occasionally with reduced performance. The system is portable and can be used from almost any network connection in the world. Session initiation, audio (VoIP), and data are transferred using standardized protocols like SIP, RTP, etc., where you can select different audio qualities depending on available bandwidth. The Remoterig system is easily configured via modern USB and WEB based user interfaces. Stereo (dual receiver) works only with radios with dual receivers.

A CW keyer has been implemented in the RRC-1285S-MkII-S-Set software to make CW operation possible, even with longer Internet latencies and jitter. During normal operation we depend on the radio's sidetone for CW, so the problem of Internet latency is solved by the sidetone being generated locally in the Remoterig box. Remoterig automatically mutes the sidetone generated by the radio for x number of ms after the dot or dash is sent; the delay can be adjusted depending on the latency.

The CW-handler is a kind of adjustable "jitterbuffer" for the CW keyer at the radio end. If the latency of your Internet connection is not constant, the delay (in ms) can be set before the radio is keyed. The CW keyer reconstructs the transmission on the fly before it is sent; a system that is much more tolerant of varying latencies (jitter). Lengthier delay settings may provide higher tolerance against jitter, but will also effectively delay the transmitted CW signal.

Example: Remote control of Kenwood TS-480



As an example, the diagram shows a TS-480 in use with the RRC-1258-MkII-S-Set. Any of the available radios with detachable front panels, like the IC-706, and TS-2000, will be configured in the same manner. The cable between the front panel and the radio is replaced with two RRC-1258-MkII-S-Set; one connected to the control panel, and one connected to the radio itself. No PC is necessary in this case.

When the power button is pressed, the radio on the remote side will start up, and all audio and information from the panel travels via the Internet between the pair of RRC-1258-MkII-S-Set units – a very similar situation to SIP-based IP telephones. All appearances and functions will be as if the front panel and radio were directly connected. Presently, the TS-480 is the simplest to adapt using one additional cable (optional Kenwood E30-3500-05). Connection cables can also be made using the RJ-45 and RJ-11 connections.

Phone Orders West 1-800-854-6046 • Mountain / Central 1-800-444-9476 • Southeast 1-800-444-7927

rt SYSTEMS

Get the Most from Your Radio!

BY KARIN THOMPSON, K0RTX – RT SYSTEMS

Radios, from HTs to HF rigs, are sophisticated pieces of equipment. With all the built-in features, programming a radio with all the required button clicks, knob turns and menus can be a challenging task.

Repeater operations, transmit and receive frequencies, tones, operating modes, and alpha-numeric tags are terms you'll encounter with almost every radio. Satellite tracking, moonbounce and emergency operations are just some of the exciting forms of communication you can participate in. That "black-box" you have can do many things when set up properly.

RT Systems software for radio programming can help. Each Programmer is designed for details of a specific radio. You will be able to set up your radio without having to wade through features and options that don't apply to your particular model.

The Programmer makes it easy to "experiment" with options you are not sure how to set. In memory channels, you can set up a channel several times with a change to one option to see which one works properly in the field. Once you identify the "good" channel, easily delete the others in the Programmer.

You may think that programming memory channels is all you need, but don't stop there! Right in the Programmer, options of the radio's set menu can be customized for your particular activity. Options for scan functions, display brightness and color, and programmable keys (just to name a few) are set with easy to use check boxes, drop-down lists, and edit boxes. Anything you can set from the face of the radio can be set and saved in the Programmer.

The RT Systems Programmers make it easy to handle data in your files; you don't even have to type in repeater details. The Programmer interfaces with many external data sources. The easy interface to this data makes it possible to create a file for an area with just a few mouse clicks. Additionally, the Programmer can import data from many file formats.

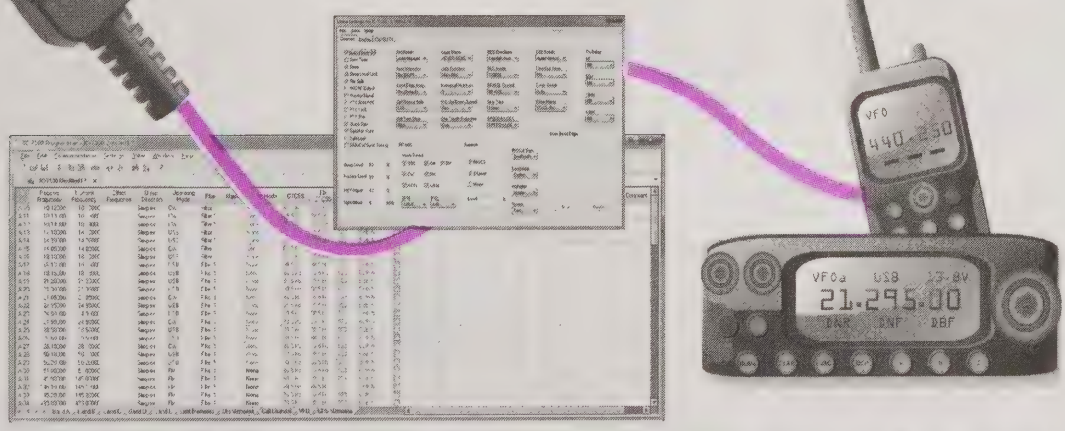
RT Systems is owned and operated by American hams just like you. We invented amateur radio programming 20 years ago and have been improving the process ever since. We are here to help you learn more about the hobby and make it easier for you to enjoy ALL the features of your radio. For additional information try the "See It Done" videos available at: www.rtsystemsinc.com.



RADIO PROGRAMMING MADE EASY

Contact HRO for Pricing and Availability

Your program is one of the best investments I've ever made in Ham Radio. I'm sure the cost of your program is offset by the hours others spend trying to get "FREE" programs to do what they want it to do. – Roy in Washington





For More Information Before You Buy: rtsystems.com | websales@rtsystemsinc.com | 800-921-4834

Radio Control

HamLinkUSB™



USB
Rig Controller Plus
HRO Price $59.95

Connect and control your transceiver via USB with Plus option for T-R switch, key, foot-switch input, or user I/O.

The HamLinkUSB™ Rig Controller Plus is a USB to logic level conversion device for CAT / CI-V enabled transceivers that provides PTT output, keying output, or foot switch input options.

The CAT / CI-V feature provides a logic level serial interface which connects directly with non-RS-232 CAT / CI-V inputs on Kenwood, Icom, Yaesu, Ten-Tec, Elecraft and Alinco models. The controller is compatible with most soundcard and software control programs such as PK-Term 3.0.

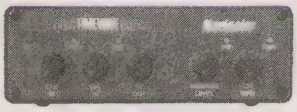
HamLinkUSB
Optional Cable Assemblies

HLUSB-CIV CI-V - Icom, Ten-Tec, Elecraft.
HRO Price $8.95

HLUSB-CAT MiniDIN-8 cable assembly for Yaesu FT-857 / 817/ 100 / 100D
HRO Price $13.95

HLUSB-4CON 4 conductor with 3.5 mm plug to open end cable.
HRO Price $13.95

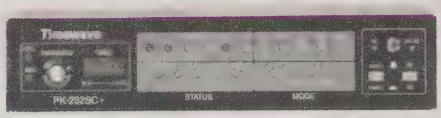
Sound Card Modem



Navigator

The Navigator USB sound card modem has a proven USB audio sound chip, six FTDI USB serial COM ports, a K1EL WinKey keyer, true FSK and rig control connections for every radio. A built-in USB sound card with isolated audio I/O to your radio prevents ground loops. A second audio input lets you use both receivers in a dual receiver radio. The logic level and RS-232 rig control ports support your Icom CI-V, Yaesu CAT, Kenwood and other radios. Front panel controls set both RX audio levels, TX audio output level, audio monitor level, and the CW speed. **HRO Price $374.95**

Multimode Data Controller



PK232SC

Multimode Data Controller
HRO Price 599.95

With the addition to the PX-232 of a built-in sound card, rig control, computer isolation, and total USB connectivity, the PK-232SC brings a new level of performance with sharp, accurate DSP filters for all its internal data modes and dual transformer isolation for sound card data modes. Weak signals magically appear from the noise and QRM bounces off the new DSP filters for cleaner copy with fewer errors than the old analog filters.

More Filters, Better Filters, Automatic Selection
The PK-232SC brickwall filters have tighter bandwidth and steeper skirts for improved noise and QRM rejection. New firmware (version 7.2) allows a wider selection of filters than the original PK-232, so the filter can match the mode. The correct DSP filter is automatically selected when you choose an internal mode. In RTTY, Timewave's proven twin peak filters pluck the mark and space tones from the noise and QRM for great copy. In PACTOR, the filter bandwidth automatically changes when the baud rate shifts in response to the error rate of the link. In Morse (CW), the operator can preset either 100 Hz or 200 Hz bandwidth. The PK-232SC is compatible with all Windows XP, Vista, and Windows 7 software terminal programs for the PK-232.

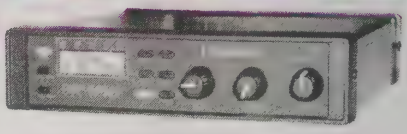
Sound Card Interface and Rig Control
For maximum flexibility, Sound Card / TNC switching is both software and panel switch controlled; sound card mode selection is software controlled. For example, when operating with Radio Operating Center software, changing to PSK31 from Pactor or MT63 is a simple menu click. The single USB cable from your PC also moves your logic level Kenwood RX / TX / RTS / CTS, Yaesu CAT, and Icom CIV and USB rig control interface to the back panel of your PK-232SC.

All the Proven Modes + All Sound Card Modes
PK-232SC supports all new sound card modes in addition to all of the existing PK-232 modes: Pactor, VHF/HF packet, AMTOR/SITOR, Baudot, ASCII, Morse, HF Weather FAX, TDM, and NAVTEX.

The PK-232 / PSK comes with a complete cable and connector set in addition to Timewave's on-line and telephone support. As always, you can upgrade any PK-232 ever built to the latest PK-232SC!

- Digital signal processor.
- 18 DSP filters.
- Twin peak RTTY filters; adaptive PACTOR filters.
- Works with all sound card modes.
- USB sound card audio.
- Rig control for Icom, Yaesu, and Kenwood transceivers.
- Single USB computer connection.
- Galvanic computer isolation.

Digital Processor



DSP-599zx

All Mode Noise Filter / RTTY Modem

This powerful noise and QRM filter surpasses the newest "DSP" radios with its flexible features. Continuous filter tuning up to 5 kHz opens up wider bandwidth modes like shortwave, AM broadcast, and VHF / UHF FM. Heterodynes disappear, weak signals pop up from the noise, and the sharp filters slice away QRM.

The DSP RTTY modem (w/optional DSP-RTTY software) pulls out solid copy when you can barely hear a signal. Filter settings are easy-to-read on the backlit alphanumeric LCD display. Pushbuttons select noise reduction, memories, voice, CW, and data modes. Optical encoders tune the filters.

- Hyperspeed DSP - 27 ns, 36.8 MIPS.
- 2 selectable channels with multiple memories.
- Front panel programmable input sensitivity and line output level.
- AC line noise AM filter.
- Calibrated audio volt meter & generator.
- 13 preset data filters plus two user presets.

DSP-599zx HRO Price $399.95; AC-8 P.S. $24.95

Noise Canceler

ANC-4

The ANC-4 RF device eliminates or reduces power line noise, computer noise, TV generated interference, and other types of electrical noise. Attach the unit directly to the antenna connector of the receiver or transceiver to cancel locally generated noise before it affects the receiver AGC circuits. Reception of signals well below the noise level of the local interference is possible.

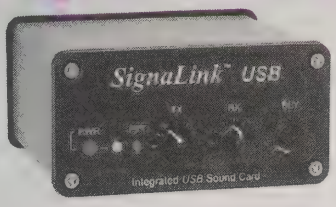
To cancel locally generated interference, the ANC-4 detects the interfering signal and adjusts its phase and magnitude so that it matches the offending interference at the receiver input, but is 180 degrees out of phase. Front panel controls allow adjustment of both phase and magnitude.

Connect the ANC-4 between the main station antenna and the receiver antenna connector. A second antenna connects to the ANC-4 to pick up noise. A short wire antenna or short collapsible whip is generally satisfactory for eliminating noises generated around the operating position or in the house, but an external antenna works better to eliminate noises generated outside the home. Any noise antenna that works, including combinations of horizontal and vertically polarized antennas, is satisfactory.

The ANC-4 operates as an active antenna by using the noise antenna and the NOISE GAIN control to amplify the antenna output. The unit can also be used as a diversity combiner to peak weak signals or null interfering signals. **HRO Price 189.95**

DIGITAL SOUND AUDIO SOLUTIONS

Tigertronics™



SignaLink™ USB
Integrated USB Sound Card

SignaLink™ USB combines the legendary performance of our SL-1+ with a state of the art "built-in" low-noise USB sound card. The unit delivers optimum performance while eliminating the need to attach to your computer's existing sound card. Convenient front panel controls and simplified installation make this one of the most user-friendly interfaces on the market.

ALL sound card digital and voice modes are supported by the SignaLink™ USB including traditional modes such as RTTY, SSTV, CW, PSK31, MT-63 and EchoLink®. Performance on all modes has been optimized by the use of special low-noise parts and careful design techniques. Front panel controls let you adjust your transmit audio, receive audio and transmit delay "on the fly."

The SignaLink™ USB works with ALL radios and can be attached to the mic jack, data port or accessory port (see table below.) A wide selection of fully assembled radio cables is available for common base and mobile radios. A special unterminated radio cable is available for handhelds and radios that use a non-standard connector.

The SignaLink™ USB comes fully assembled and tested. No external power required; power is from the USB port. The unit comes with a USB cable. Specify which cable is to be included by using the table below. Also included: mono cable, jumper wires, allen wrench, software CD, documentation. Supports Windows, Mac OS9.1 or later and Linux. FCC certified to comply as a Class B digital device. Unit prices including the radio cable are shown in the table below. **HRO Price $104.95 each**

Microphone Connectors

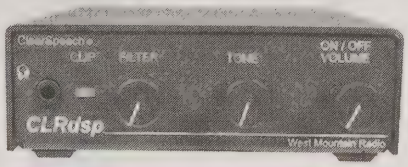
SLUSB4R	For 4-pin round mic connector
SLUSB8R	For 8-pin round mic connector
SLUSBRJ11	For RJ-11 mic connector
SLUSBRJ45	For RJ-45 mic connector
SLUSBKX3	For Elecraft KX3

Accessory Port Connectors

SLUSB5PD	For 5-pin DIN data / accessory port
SLUSB8PD	For 8-pin DIN data / accessory port
SLUSB6PM	For 6-pin mini DIN data / acc.port
SLUSBK3	For Elecraft K3
SLUSB13I	For Icom 13-pin DIN accessory port
SLUSB13K	For Kenwood 13-pin DIN acc. port

West Mountain Radio audio products contain ClearSpeech® noise reduction/digital signal processing that provides extremely effective noise reduction for voice and CW. Reduces or eliminates atmospheric noise, hum, hiss, heterodynes & static. Greatly improves the signal-to-noise ratio and thus the readability of all QSOs.

West Mountain RADIO



Noise Reduction Processor
CLRdsp ClearSpeech® DSP

Speaker and headphone amplifier with ClearSpeech® adaptive DSP noise reduction for voice and CW. Recognizes intermittent nature of CW and allows it to pass noise free. Continuously adjustable noise reduction. Contains 11 watt (into 4 ohms) power amplifier. Sturdy aluminum case. Ideal for mobile operation as well as home station. Plugs into the speaker or headphone output on the radio. Powerpoles® plug into any 12V supply. #58407-949 **HRO Price $199.95**

Speakers / Headphones



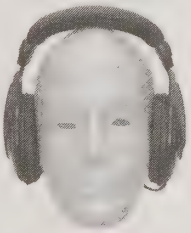
MFJ

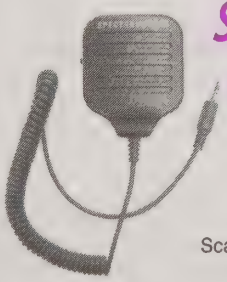
MFJ-281

MFJ ClearTone™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3-inch speaker handles 8 Watts. 8 ohm impedance. 6 foot cord.

MFJ-392B

MFJ's communication headphones are perfect for amateur radio and shortwave listening. All modes, each earphone with separate volume control. Super padding. 9' cord.



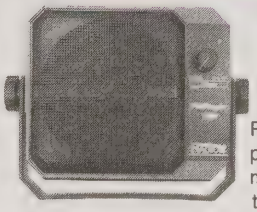


SCANNER MASTER

Spectrum Force

Scanner Lapel Speaker
HRO Price $19.95

High Power 15 Watt Speaker



PWRspkr 15W

RMS linear power amplifier minimizes distortion at high sound levels. Sharp bandpass filter with 300 Hz to 3.2 kHz pass band attenuates unneeded bass and treble sounds. Adjustable gain control. Plugs into radio's speaker or headphone jack. Ideal for use in truck or car for improved communication in noisy environment. Power cable fitted with Powerpole® connector. #58406-947 **HRO Price $75.95**

Noise Reduction Speaker
CLRspkr ClearSpeech®



Amplified loudspeaker with ClearSpeech® adaptive DSP noise reduction for voice and CW. Recognizes intermittent nature of CW and allows it to pass noise free. Continuously variable adaptive filter noise reduction. Contains 4-in. loudspeaker with 7.5 Watts RMS maximum amplifier. Volume control knob for adjustment of internal speaker sound level. Front mounted 1/8 - inch stereo output jack for powered speakers or 16 ohm (or higher) headphones. #58407-948 **HRO Price $199.95**

RF Immune Computer Speakers

COMspkr



Eliminate HAM radio station interference. Replaces RF interference prone computer speakers. Amplified speaker system optimized for operation in close range of any radio transmitter. Exceptionally high rejection of radio frequency interference from 1 to 1000 MHz. Stereo high fidelity response for use with voice or music. High 3-Watts per channel acoustic power output can be heard clearly in noisy environments. Built-in amplifier assures compatibility with most computers and/or two way radios. #58409-950 **HRO Price $39.95 per pair**

HEiL SOUND

HM-12
Designed for Hams



The high output full range "Genesis" dynamic element in the HM-12 is designed to work with just about every amateur radio low impedance transmitter. The element is mounted in a unique internal shock mount and exhibits nearly -35 dB of rear rejection, reducing background and ambient noise from the transmitted signal.

The "soft touch" PTT switch is wired to pins 3 and 4 for transmitter control with the microphone signal fed to pins 1 and 2 of the 4 pin XLR. The Heil HM-12 uses Heil CC-1 connecting cables.

This microphone has a unique internal windscreen plus an external foam windscreen. It has the 5/8" X 27 microphone clip designed for our booms and stands. Frequency response: 80 Hz-14 kHz @ -55 dB. Satin black finish. **HRO Price $CALL**

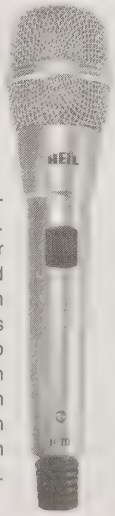
PR-781
PR-781G



These professional quality dynamic cardioid microphones for amateur radio provide a wide frequency response, great articulation, and a -40 dB of rear rejection with ample output to drive most amateur radio microphone inputs. The PR-781G is specifically designed for use with most makes of Elite transceivers by Kenwood, Flex, Elecraft, Yaesu, Ten Tec and Icom. The PR-781G is the same great design and performance as the PR-781 but now with a beautiful gold screen. Both models come with the SM-3 mount.

PR-781 HRO Price $CALL
PR-781G HRO Price $CALL

iCM
Salvation for Icom Users!



The iCM is a high-quality microphone for early Icom transceivers. It features a high-gain condenser element that provides full-bodied audio with plenty of drive to match up with the low-gain audio systems of the earlier Icom rigs. It also works great with the higher-gain "Pro" radios and IC-7800 from the current Icom line. Comes with a shielded 8' cable terminating in an 8-pin mic plug and a 1/4" pigtail. **HRO Price $CALL**

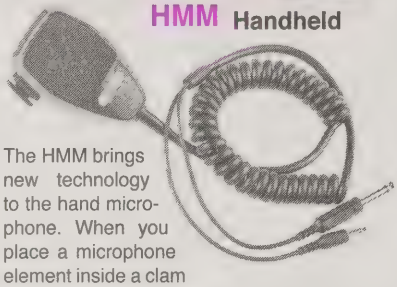
The Heritage HHG

NEW!



The Heritage is a dynamic microphone with a vintage chrome look. It utilizes the PR 20 element and has a lockable on/off switch. It is available in chrome or black matte with blufoam windscreen.
HRO Price $CALL

HMM Handheld



The HMM brings new technology to the hand microphone. When you place a microphone element inside a clam shell, the result is a hollow muffled sound. To solve this problem, we installed a grill on the top of the microphone that detunes the internal resonance of the housing. We came up with a very special, full-range microphone element with great speech articulation. A very flexible but sturdy coil cable terminates as all of our headsets with 1/8" male for the microphone and a ¼" male for the PTT control. Also offered with the iC electret element as HHM-iC. AD-1 cable required. **HRO Price $CALL**



HM-iC

Handi-Mics

The Handi Mic is an ultra-compact hand microphone utilizing a special internal shock mount, yielding superior audio compared to the standard microphones offered by the radio manufacturers. The Handi Mic is available with the "iC" element designed for Icom rigs. A special "Pro" version is also available, with a wide-frequency "broadcast" element that sounds great on FM mobile rigs. **HRO Price CALL**

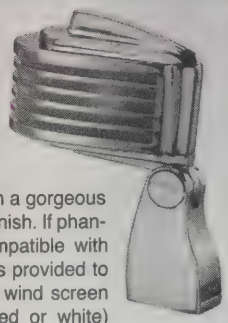
Model	Element	PTT
HM-iC	Electret for most Icom	Yes
HM-PRO	Wide range broadcast	Yes

Pro Connector Cables

This 8 ft long cable connects The Fin and PR Series microphones to your 8-pin Kenwood, Yaesu, or iCOM transceiver. Made with Heil-wire to help reduce RFI and noise. Pig tail easily connects to HS-2, FS-2 or FS-3.

CC-1 XLR Y	**Yaesu cable**	**$39**
CC-1 XLR BAL	**FT-950, FTdx9000**	**$39**
CC-1 XLR I	**Icom cable**	**$39**
CC-1XLR K	**Kenwood cable**	**$39**

The Fin™



The Fin™ utilizes the PR-20 element so popular in the professional audio realm. It is housed in a gorgeous high-gloss chrome finish. If phantom power (not compatible with Icom transceivers) is provided to The Fin™, the blue wind screen (also available in red or white) becomes illuminated by 4 embedded LEDs Now also available in satin black with red, white or blue LEDs/foam. CC-1 XLR required. **HRO Price $CALL**

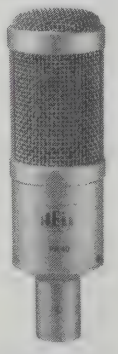
PR-10 Mic Package

NEW!



Small in stature, mighty in performance, the PR 10 combines a desk stand, boom and the latest microphone offering from Heil Sound. The integrated mic exhibits outstanding speech articulation with perfect balance of highs and lows. Works well on most all transceivers. Requires a CC-1 XLR series cable to interface with your transceiver. **HRO Price $CALL**

Heil PR40



The PR 40 was designed for commercial broadcast, live sound and recording. It features the Heil dynamic element with a perfectly flat response from 28 Hz all the way up to 18 kHz and has gorgeous articulation. The PR 40 is shipped with the SM-3 5/8" X27 mount and a padded leatherette carrying case and is available in chrome, gold, and matte black with gold grill finish. All the PR series microphones require a CC-1 XLR cable to interface with your transceiver. **HRO Price $CALL**



Heil PR30

The PR 30 was designed for commercial broadcast, live sound and recording. It has comparable sound to the finest condenser microphones because of its wide frequency response, excellent transient response and low IMD. The PR 30 comes standard with the SM-3 5/8"X27 mount. All the PR series microphones require a CC-1 XLR cable to interface with your transceiver. Available in black or champagne. **HRO Price CALL**

MICROPHONE ACCESSORIES

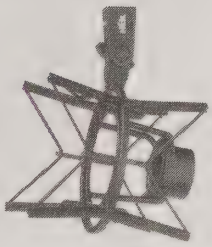
Mounts



SM-1
Shock Mount
microphone not included

The ultimate suspension mount for your Heil hand microphones. This shock mount can be used on all Heil stands or booms with 5/8" x 27 standard threads." **HRO Price $80.00**

PRSM
Shock Mount



This flexible support system helps suppress low-frequency rumble by dampening vibrations. The PRSM fits large-diameter microphones including the PR 30/40/781 and can be used on all booms or stands with 5/8 threading. **PRSM-B** black finish. **HRO Price $CALL**
PRSM-C champaign finish. **HRO Price $CALL**

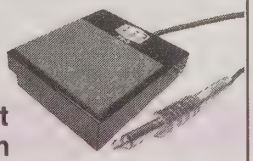
Switches

HS-2 PTT Hand Switch



Heil's high quality hand switch made for P.T.T. operation is shaped to fit your hand naturally and comfortably. Comes with a 6 foot cable that plugs into the AD-1 or CC-1 adapter. **HRO Price $32**

FS-3
Single Circuit Footswitch



Use the FS-3 to control the transmit function of your amateur radio. A 6-foot shielded cable is terminated with a commercial 1/4" plug that connects into the Heil CC-1 and AD-1 cable system. **HRO Price $26**

FS-2 Dual Footswitch



This unique dual-action footswitch provides two sequenced microswitches, one each for connection to your transmitter and your linear amplifier; when you press down on the footswitch, the amplifier's switch is engaged first, followed immediately by the switch for the radio, and when you let up the reverse sequencing takes place. This provides safe T/R switching for both radio and amplifier without need for a control cable between the two units. **HRO Price $45.00**



NEW!

LB-1R
Illuminated Base

Heil's wild red base has a PTT with the Heil logo. LED's can be lit in three different ways. Standard brass threading works with any Heil Sound microphone and accessories. This weighted base features a high strength plastic covering for great looks. **HRO Price $CALL**



CB-1 PTT
Classic Base

A beautiful reproduction of a 1930 RCA microphone base. This heavy 3 lb. steel base with stainless trim features soft touch PTT with a 4" riser that accepts 5/8' x 27 hardware. **HRO Price $78.00**

FL-2
Flange Mount



With brass insert. Fits the PL-2T, SB-2, HB-1. **HRO Price $28**



DT-1
Desktop Flush Mount

Allows PL-2T, SB-2 and HB-1 to slip into 1-1/2" hole drilled into desktop. **HRO Price $35.00**

WM-1
Vertical Surface Mount



The WM-1 is a unique mount for the Heil booms that allows them to be mounted on a vertical surface. The brass insert of the WM-1 ensures smooth, perfect fit with PL-2T and HB-1. **HRO Price $22**

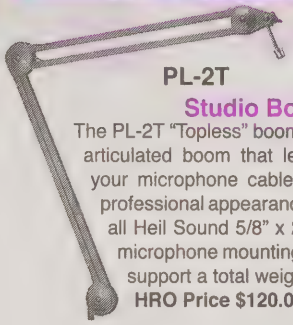
Pre Amp



USBQ
Microphone Pre Amp

The Heil USBQ is a professional quality, low noise microphone pre amplifier complete with two band shelving equalizers, on-board headphone amplifier, and D/A converter in a compact, portable package. Not just an adapter, but a true single channel mic pre amp complete with balanced XLR input mic level, switchable phantom power, bass and treble controls, and adjustable headphone output level. The USBQ is for professional recording, commercial broadcasts and communicating over the internet. No batteries, just plug into USB and enjoy. **HRO Price $90.00**

Booms



PL-2T
Studio Boom

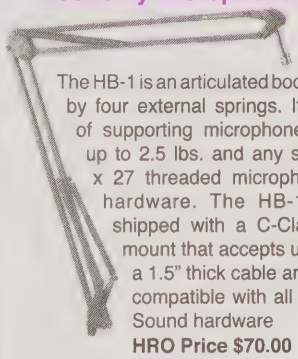
The PL-2T "Topless" boom is a unique articulated boom that lets you tuck your microphone cable away for a professional appearance. It accepts all Heil Sound 5/8" x 27 threading microphone mounting clips. It can support a total weight of 2.5 lbs. **HRO Price $120.00**

SB-2
Small Boom



This compact, adjustable boom accepts standard 5/8 x 27 threading and comes with a C-Clamp. It is compatible with all Heil Sound hardware. **HRO Price $73.00**

HB-1
Economy Microphone Boom



The HB-1 is an articulated boom balanced by four external springs. It is capable of supporting microphones weighing up to 2.5 lbs. and any standard 5/8 x 27 threaded microphone hardware. The HB-1 is shipped with a C-Clamp mount that accepts up to a 1.5" thick cable and is compatible with all Heil Sound hardware **HRO Price $70.00**



RS-1
Riser

This 12" riser allows you to mount any Heil Sound boom behind your transceiver or console. **HRO Price $28**

Wireless Adaptor

HBA
Wireless Connector



We bring to you a pair of simple wireless devices one connecting into any of our 3 pin balanced XLR microphones (PR 20, PR 22, PR 781, etc) and the receiver connected to the microphone input of any Heil AD-1 headphone adapter.It has a range of about 40'. The stations you work can not tell that you are using a wireless adapter instead of a wired mic cable.Shipped in a very nice padded carrying case. **HRO Price $CALL**

HEIL SOUND

NEW!

Pro-7



The Pro 7 is a dual channel, stereo headset featuring an audio balance control allowing the user to adjust levels between speakers. It also features the Heil Sound Phase Reversal Switch, which allows the user to "move" the incoming signal to significantly improve copy in a tough DX pile up. The mic boom can be rotated for use on either the right or left ear. The Pro 7 is available with the HC-7 dynamic element or the iC electret element. It is available in black, red, and blue. Compatible with current AD-1 series adapter cables. **HRO Price $CALL**



Pro Set 3 Stereo Headphones

Pro Set 3 stereo headphones are professional and lightweight designed for music redordings, internet, commercial radio, and ham radio. They ship with 3 detachable cables: a 1.8 M flexible straight cable, a 1.8 M straight cable with 3.5mm plug, and a 3 M coiled cable. All cables feature a twist lock terminating in a 1/8" (3.5mm) professional gold plated screw-on 1/4" (6.3mm) adapter. The Pro Set 3 features the Heil Sound Phase Reversal Switch, which allows the user to "move" the incoming signal to significantly improve copy in a tough DX pile up. **HRO Price $CALL**

Pro Set Elite



The Pro Set Elite utilizes the HC-6 wide response microphone element. It has dual side, high efficiency speakers on acoustically tuned chambers for high rejection of outside noise. The unit folds up for easy transportation and storage.

The **Pro Set Elite** is available with the HC6 element for commercial broadcast applications (requires AD-1 adapter) or the iC electret condenser designed for low mic inputs used on many iCOM transceivers. The **Pro Set Elite iC** requires 5 volts of DC phantom power (provided by all iCOM rigs) and includes AD-1 iC adapter. **HRO Price $CALL**

Pro Sets

CALL for HRO Prices



Pro Sets are lightweight, versatile boomsets featuring the Heil Sound Phase Reversal Switch, allowing the user to "move" the incoming signal to significantly improve copy in a tough DX pile up. The Pro Set is available in three versions:

Pro Set Media Pro for computer is supplied with a high-level condenser element and two 1/8" plugs for applications requiring connection of a headset / boom mic to a computer's sound card.

Pro Set 6 for commercial broadcast applications utilizes the new HC-6 element. Requires AD-1 adapter.

Pro Set iC with electret condenser designed for low mic inputs used on many iCOM transceivers. The iC requires 5 volts of DC phantom power (provided by all Icom rigs) and includes AD-1 iC adapter.

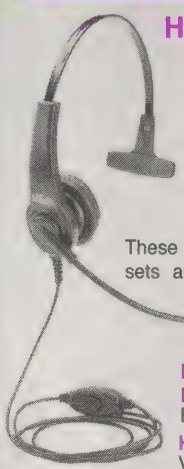
Pro SetAccessories:

BAG -1 Leatherette travel bag for all Heil Sound headsets.**HRO Price $28.95**

Lightweight

Handie Talkie Headset

NEW!



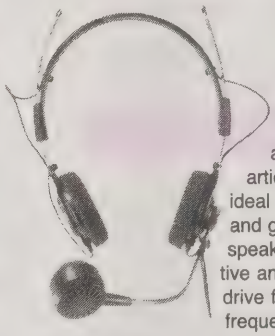
HTH Single-sided

HRO Price $CALL

These HTH single-sided lightweight headsets are designed for use with popular handheld transceivers featuring an in-line PTT.

HTH-i Works with 2-pin Icom.
HTH-K Works with 2-pin Kenwood, Baofeng, and Wouxon.
HTH-Y* Works with TRRS Yaesu / Vertex.

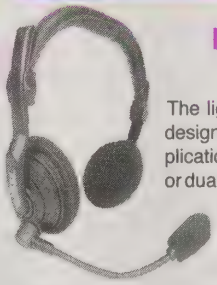
*For weather resistant Yaesu / Vertex, use the HTH-Y and HTH-ADY adapter.



BM-10

The BM-10 headset is a lightweight (only 3 oz), articulate boomset that is ideal for DXpeditions, mobile, and general rag chewing. The speakers are extremely sensitive and don't require much AF drive from the transceiver. The frequency response is 60 Hz - 12 kHz with very low distortion. The ear pads are replaceable acoustic foam. The BM-10 comes in two versions, a BM-10-Dynamic and a BM-10-iC (electret), to accommodate many radios on the market today. Ad-1 cable required. **HRO Price $Call**

High Performance

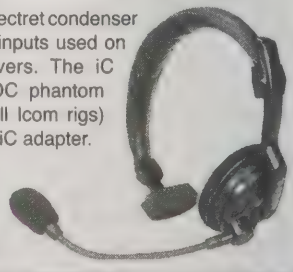


Pro Micro PMD-6 Dual-sided

The lightweight Pro Micro headset is designed for commercial broadcast applications. It is available in single sided or dual sided models. **HRO Price $Call**

Pro Micro 6 is equipped with HC-6 element (AD-1 adapter required).

Pro Micro iC has an electret condenser designed for low mic inputs used on many Icom transceivers. The iC requires 5 volts of DC phantom power (provided by all Icom rigs) and includes an AD-1 iC adapter.



Pro Micro PMS-6 Single-sided

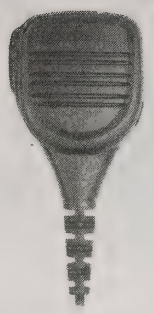
MICROPHONES / HEADSETS



SPM-100



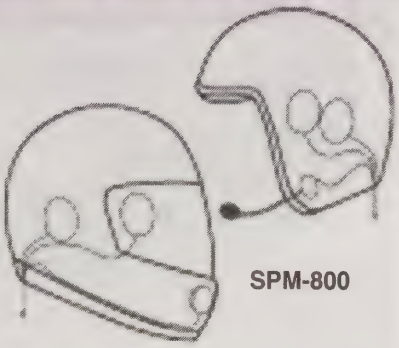
SPM-2100*



SPM-600A*



SPM-300EB



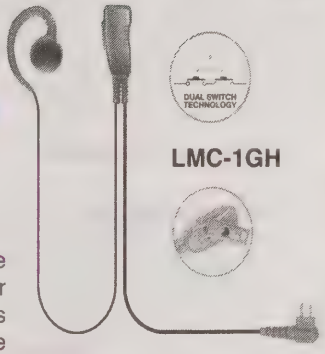
SPM-800

PRYME®

Radio Products

Speaker Microphones, Earphones Lapel Microphones and Over-the-Ear Boom Microphones

Pryme Radio Products has a product to meet any portable communication need. A leader in audio accessories for two-way radios, they offer small speaker microphones (the SPM-100 series) and full sized microphones (the SPM-2100). Users on the go will appreciate ultra comfortable lapel microphones (SPM-300) and the latest swivel earpiece LMC-1GH series.



LMC-1GH

SPM-2100 and SPM-600 microphones now have a 2 year warranty.

Pryme Microphones

Model	Description	HRO Price
SPM-100	Speaker / microphone for ADI, Icom, Standard, old Yaesu	$24.95
SPM-101	Speaker / microphone for Kenwood, Wouxun	$32.95
SPM-102	Speaker / microphone for FT-60R/FT-250/VX-3R/FT-1DR	$19.95
SPM-130	Speaker / microphone for Icom ID-51A	$19.95
SPM-142	Speaker / microphone for VX-6R/FT-270R	$24.95
SPM-300EB	Lapel mic with ear hook for ADI, Icom, old Yaesu	$34.95
SPM-301EB	Lapel microphone and ear hook for Kenwood,Wouxun	$25.95
SPM-302EB	Lapel microphone for FT-60R/FT-250/VX-3R/FT-1DR	$25.95
SPM-330EB	Lapel microphone for Icom ID-51A	$39.95
SPM-342EB	Lapel microphone with ear hook for VX-6R/FT-270R	$29.95
SPM-630	Speaker / microphone for Icom ID-51A	$39.95
LMC-1GH00iL	Lapel mic w/swivel earpiece for AD1, Icom, Standard, old Yaesu	$29.95
LMC-1GH01	Lapel microphone with swivel earpiece for Kenwood, Wouxun	$29.95
LMC-1GH30	Lapel microphone with swivel earpiece for Icom ID-51A	$29.95
SPM-800B	In-helmet speaker mini boom for ADI, Icom, Standard, old Yaesu	$49.95
SPM-801B	In-helmet speaker mini boom for Kenwood,Wouxun	$49.95
SPM-802B	In-helmet speaker mini boom for FT-60R/FT-250/VX-3R/ FT-1DR	$49.95
SPM-800F	In-helmet speaker / microphone for ADI, Icom, Standard, old Yaesu	$59.95
SPM-801F	In-helmet speaker / microphone for Kenwood, Wouxun	$49.95
SPM-802F	In-helmet speaker / microphone for FT-60R/FT-250R/VX-3R/FT-1DR	$49.95
SPM-2101	Heavy duty speaker/microphone for Kenwood. Wouxun	$39.95
SPM-2102	Heavy duty speaker/microphone for FT-60R/FT-250R/ VX-3R/FT-1DR	$39.95
SPM-2142	Heavy duty speaker/microphone for VX-6R/FT-270R	$39.95

HRO Extended Warranty Program

HRO's Optional Extended Warranty Program extends the original manufacturer's limited warranty on most Amateur Radios, but not for attendant accessories (like batteries, microphones, speakers, etc.) A period of one (1) or two (2) additional years can be selected, and all limitations, exceptions, and exclusions of the original manufacturer's warranty apply during this extended period.

The HRO Extended Warranty Program must be purchased within 30 days of the date the original product(s) was purchased, and is only available to the original purchaser of the relevant product(s). Neither the benefits nor coverage of this program are assignable or transferable, and verification that the Extended Warranty Program was purchased, product purchase date and serial numbers may be required of the buyer.

The HRO Extended Warranty Program starts at the conclusion of the new product original warranty period, and all Extended Warranty claims must be processed by HRO directly via any one of our thirteen store locations.

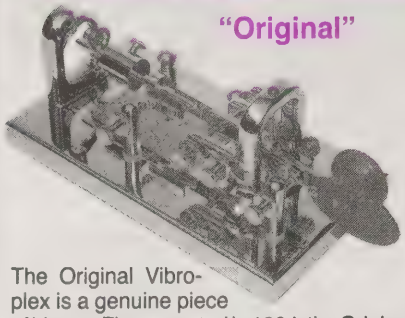
Further details are available online at www.hamradio.com.

VIBROPLEX®

KEYERS & KEYS

Quality and Pride Throughout

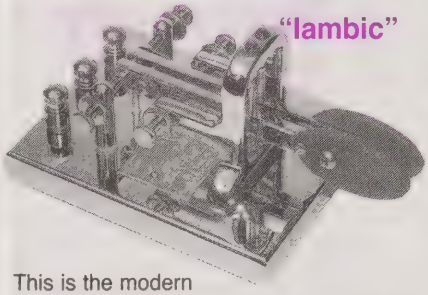
"Original"



The Original Vibroplex is a genuine piece of history. First patented in 1894, the Original is still manufactured today using tools and dies very similar to those used by its inventor, Horace G. Martin. Modern-day operators can put their fist to the same equipment as the Western Union and railroad operators of old.

Original Deluxe pictured: **HRO Price $249.95**

"Iambic"

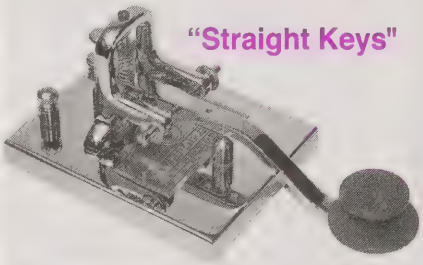


This is the modern descendant of the Original. It incorporates the traditional Vibroplex look for use with modern electronic keyers.

Iambic Deluxe: Same as Presentation but without the 24K gold plated brass plate. **HRO Price $189.95**

Iambic Standard: A neat, crisp black textured finish base with bright decorative chrome top parts. **HRO Price $149.95**

"Straight Keys"

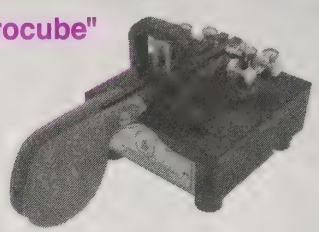


Vibroplex® offers a STRAIGHT key with a unique mechanical action, unlike any other straight key that has ever been manufactured.

Straight Key Deluxe: Highly polished chrome base with decorative chrome top parts. **HRO Price $189.95**

Straight Key Standard: A neat, crisp black textured finish base with bright chrome top parts. **HRO Price $149.95**

"Vibrocube"

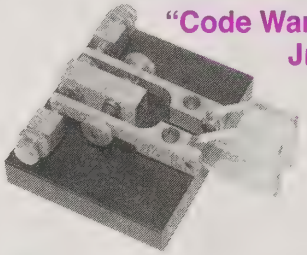


The Vibrocube registers just under 6 pounds on the scale. It is a large paddle that stays in place on the desk and accomodates a large hand comfortably. The base is USA-forged cold-rolled steel, upper components are zinc, steel and brass. The finger pieces are hard red acrylic. Instead of magnetic tensioning, we use a spring loaded method which provides a greater range of possible tension settings than magnets allow.

Vibrocube Standard: **HRO Price $189.95**

Vibrocube Deluxe: Like the Standard version with jeweled upper and lower trunion screws, an all-chrome base and all-chrome top components **HRO Price $289.95**

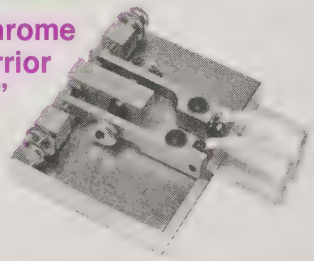
"Code Warrior Jr"



The Code Warrior Jr. is a small footprint, steel base key with brass top parts and silver tipped copper contacts. Practical for home or portable use. Magnetic return action for wide range of tension adjustment. Weighs just 1 lb 10 oz. Budget priced. Available with black or blue base.

Code Warrior Jr: **HRO Price $99.95**

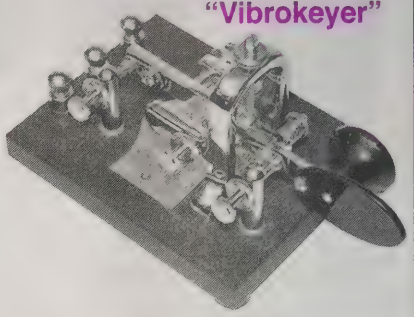
"Chrome Warrior Jr"



The Chrome Warrior Jr. is identical to the Code Warrior Jr. but has a decorative bright chrome polished steel base.

Chrome Warrior Jr: **HRO Price $139.95**

"Vibrokeyer"



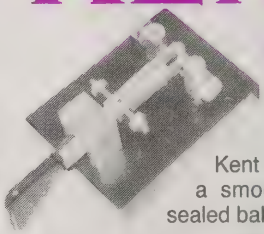
The Vibrokeyer is designed for those who prefer a non-iambic paddle. The single lever paddle imitates the automatic dots and dashes of the electronic keyer with the same motion used to operate the "Bug."

Vibrokeyer Deluxe: Highly polished decorative chrome base with bright chrome top parts. Silky smooth movements are jeweled as in fine Swiss watches. **HRO Price $189.95**

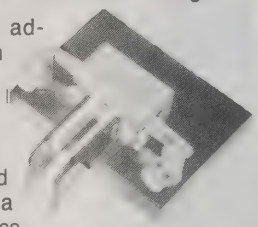
Vibrokeyer Standard: A neat, crisp black textured finish base with bright decorative chrome parts. Non-jeweled movement. **HRO Price $149.95**

KENT

Paddles



Kent paddles offer a smooth feel with sealed ball bearings.

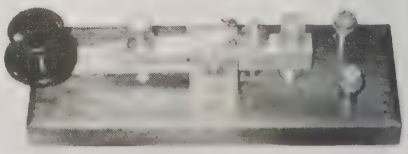


Precise gap adjustments with knurled heads on fine pitched screws and locking nuts. Made from solid brass within a permanent brass housing.

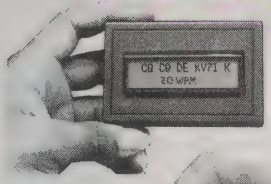
Twin Paddle	**(TP-1)**	**$164.95**
Single Paddle	**(SP-1)**	**$159.95**

Straight Key

Straight Key	**(SK-1)**	**$154.95**



MFJ

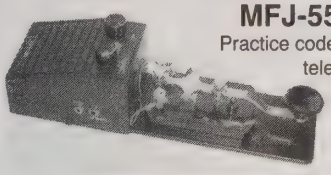


MFJ-461
Morse Reader, 3-60 WPM. Use 9V, not included.

MFJ-418
Morse Tutor 3-60 WPM. Use 9V, not included.



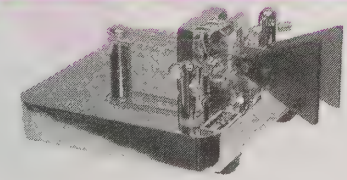
MFJ-557
Practice code oscillator, telegraph key.





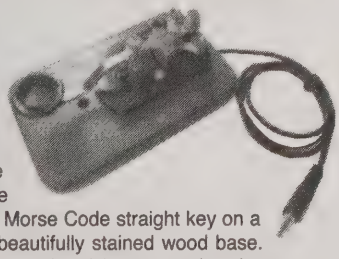
MFJ-464
Keyer / Reader. They won't know you never passed the code test! Sends / reads 5-99 WPM. Auto speed tracking. 2-line LCD. Use paddle or keyboard. Easy menu operation. Front panel speed, volume controls.

Iambic Paddles / Keys



MFJ-564 Chrome
MFJ-564B Black
Chrome Iambic paddle features a full range of adjustments in tension and contact spacing, self-adjusting nylon and steel bearings, contact points that almost never need cleaning, precision machine frame and non-skid feet on heavy base.

MFJ-553



Deluxe wood base features a Morse Code straight key on a non-skid, beautifully stained wood base. A steel under-plated bottom makes it stay on your table. 3' cable with 3.5 mm plug. Handsome.

Bencher inc

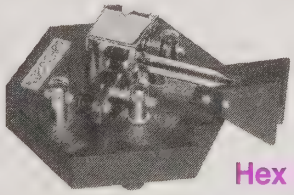


RJ Series Hand Keys

The "RJ" hand keys have an advanced American-style design derived from the telegraph keys that won the west, yet with modern features like Oilite bearings, a solid navy knob, gold-plated solid silver contacts, full locking adjustments of all tension and spacing parameters, and Bencher quality materials throughout. These keys are ideal for the new amateur just mastering code as well as the old time brass pounder anxious to "clear the hook." This key offers the Morse code operator an investment that will bring years of pride and satisfaction.Try the Bencher "RJ" hand key at your nearby HRO. You will be convinced there is no better key available.

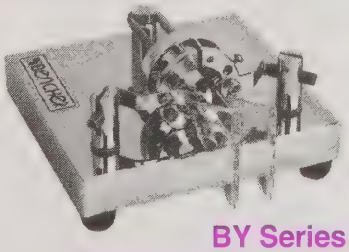
HRO Prices:

RJ-1	Black	$139.95
RJ-2	Chrome	$159.95



Hex Key

Gold plated silver contacts. Molded acrylic finger paddles. Polished chromium parts. Magnetic tension adjustment and adjustable contact spacing. Black powder coated steel base. **HRO Price $299.95**



BY Series Iambic Paddles

You will enjoy the smooth, precise action of a Bencher paddle with any iambic keyer. These paddles feature a heavy steel base, gold plated silver contact points, non-skid feet, stainless steel adjustable spring, self-adjusting needle bearings, and large acrylic finger paddles.

HRO Prices:

BY-1	Black	$154.95
BY-2	Chrome	$189.95

ST Series Single Lever Paddles

Superb Bencher features and construction for the ham who prefers single lever operation.

HRO Prices:

ST-1	Black	$139.95
ST-2	Chrome	$154.95

Encoders / Decoders

CSI

COMMUNICATIONS SPECIALISTS, INC.

Tone Signaling

Tone encoders and decoders are just what you need to control your repeater or listen only to signals that are meant just for you.

TS-64WDS
Encoder / Decoder
Universal design, CTCSS encoder / decoder capability for all FM transceivers.
HRO Price 54.95

SS-64
Encoder
DIP switch programmable CTCSS encoder for all FM transceivers.
HRO Price $28.95

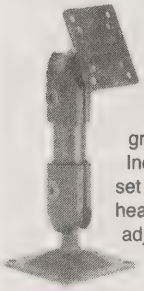
DCS-23
Encoder / Decoder
Motorola® type encoder / decoder. Compatible with all DCS systems.
HRO Price $59.95

ID-8
Morse Code Identifier
8 programmable, selectable messages for repeater ID.
HRO Price $69.95

GPS, Radio & Phone Mounts

Portagrip

Portagrip's collection of mounts for cellular phones, GPS units and radios will make your mobile operations easier and safer.



Slimline 2000 Pedestal Mounts: Pivot 210 degrees and rotate 360 degrees, 6" or 9" heights. Includes model 716 w/ set screw adjustment at head and foot, 717 knob adjustment at head and foot.

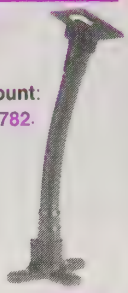
716



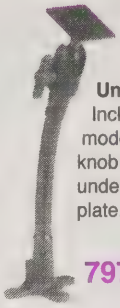
Mini Mount: Perfect for tight installations, height only 4". Includes models 77-04 set screw adjustment at head and 727-04 knob adjustment at head.

727

Stay-put Flex Mount: Includes model 782.

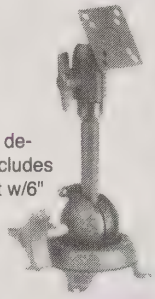


782



Uniflex Mount: Includes model 797 with knob adjustment under mounting plate.

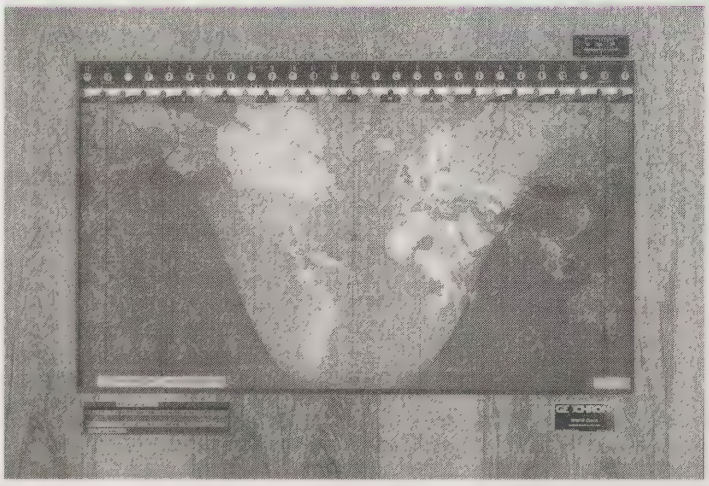
797



Standard Mounts: Split ball base with 90 degree tilt movement. Includes models 320 std mount w/6" rise, 322 deluxe mount w/6" rise, 328 mount base only accommodates 5/8" diameter post and tilts 0 to 90 degrees, 329 base only accommodates 5/8" diameter post and tilts to 45 degrees over center.

322

Wall Clock



Size: 34" x 22" x 5"

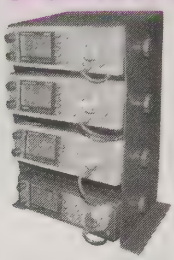
GEOCHRON. Global Time Indicator

Now Available also as Geochron Topographical

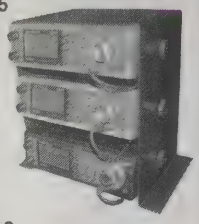
Geochron is a true global time indicator. At any moment, Geochron displays the correct time everywhere in the world – the week, date, the sun's declination and distribution of daylight and darkness on the earth's surface. Geochron is available in two (2) models and a multitude of housing finishes and trim colors. (Shown above: Original Kilburg Veneer Hickory Black Trim.) Packaged for "drop shipment" anywhere in the world via UPS. Geochron can be surface mounted on the wall like a picture or recessed using optional mounting brackets. Call HRO for special pricing **opportunities.**

SCANNER MASTER

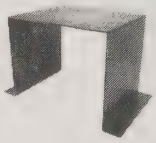
(Radios not included)



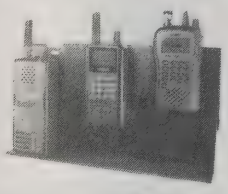
DESK-MT-BASE-4 Desk mount for 4 base scanners. **HRO Price $79.95**



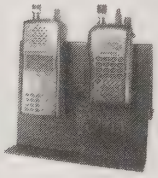
DESK-MT-BASE-3 Desk mount for three base scanners. **HRO Price $69.95**



DESK-MT-BASE-2 Desk mount for two base scanners. **HRO Price $59.95**



DESK-MT-PORT-3 Desk mount for three portable scanners. **HRO Price $59.95**



DESK-MT-PORT-2 Desk mount for two portable scanners. **HRO Price $49.95**

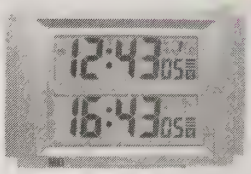


DESK-MT-PORT-1 Desk mount for one portable scanner. **HRO Price $39.95**

Ham Radio Clocks

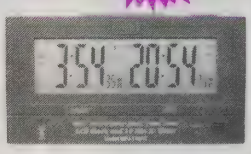
MFJ

NEW!



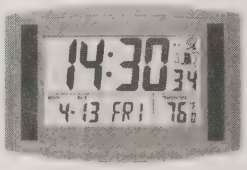
MFJ-121B

Two independent atomic 24 / 12 clocks, huge 1" W x 2" H digits. True UTC, backlight.



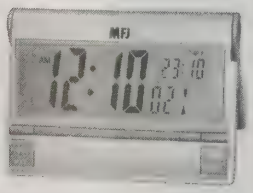
MFJ-148RC

Two atomic 24 / 12 clocks, synched time base, 1.5" digits, 10-minute ID timer. True UTC.



MFJ-123B

24 / 12 atomic. 2-inch digits. True UTC. Day, date, indoor temperature. Solar powered. 9.5" W x 6.25" H x 1" D.



MFJ-133RC

24 / 12 atomic travel clock. True UTC. Display two time zones. 1-1/8" digits. Backlight.

EQUIPMENT MOUNTS

DESK STANDS

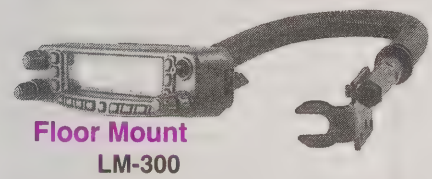
Lido

Radios are NOT included. They are shown for illustration purposes only.

The BUG Mount
LM-900
shown with optional radio



The BUG is a mount for securing small, narrow profile radio control heads for Satellite radios, (both XM and Sirius); VHF radios, HAM radios and more. **HRO Price $19.95**



Floor Mount
LM-300

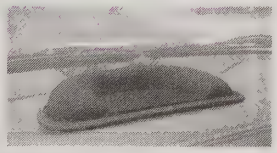
This mount has a 15" Gooseneck Swivel Mounting Pedestal, allowing you to place your device in the perfect position for optimal viewing. Just loosen the passenger seat bolt, slide the mount bracket under the bolt, tighten the bolt. The mount comes with a 4 hole AMPS plate to mount remote heads. **HRO Price $24.95**

Bean Bag Dash / Windshield Mount w / Side Grip Holder
LM-2500H



The bean bag mount weighs 2 pounds and has a non-skid surface on one side. On the other side is a plate designed for the LM-500 mount suction cup to attach to. The Gripomatic side grip holder has padded arms that hold your transceiver. **HRO Price $39.95**

Bean Bag Dash Mount
LM-25



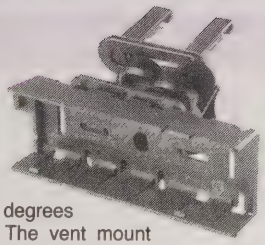
The bean bag includes a safety loop and a plastic hook to ensure the stability of the weighted friction dash mount. The open design in the front of the mount allows for viewing your entire GPS. **HRO Price $19.95**



Adapter for Yaesu FTM-350
LM-AD1

Adapter kit for the FTM-350 remote display head and similar (including Icom) remote display heads that use the camera style threaded socket to hold the display head to the mount. The kit is sold separately and attaches to all the Lido Mounts. **HRO Price $8.95**

Vent Mount
LM-100



The vent mount has a 4 hole AMPS pattern that can be attached to Alinco, Icom, Kenwood and Yaesu remote head brackets. Swivel 360 degrees for optimal viewing. The vent mount can be installed or removed in seconds. Fits most horizontal vent louvres. It does not work on the large circular vents like those found in Mustangs and PT Cruisers. **HRO Price $14.95**

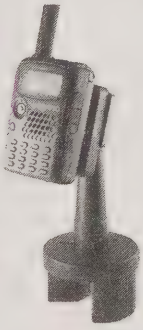
Vent Mount w/ Side Grip Holder
LM-100H



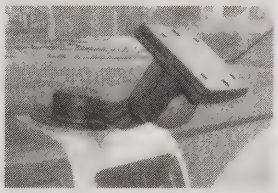
The vent mount includes a side grip holder for some Kenwood and Icom remote heads. The grip has padded arms and can handle devices from 1 7/8 inches to 4 1/4 inches in height. Easily remove your device to store out of sight when you reach your destination. For use with horizontal air vent louvres. **HRO Price $24.95**

Cup Holder Mount
LM- 801EXP



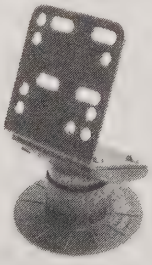


The Cup Holder mount works for either an HT or a remote radio head. A flywheel control on the top of the base allows the user to adjust the mount to just about any size cup holder. The mount stands 5 1/2 inches tall can be installed or removed in seconds. **HRO Price $24.95**



UltiMount
LM-700

The UltiMount installs in seconds and can be swiveled, rotated and adjusted to virtually any position. Secured with a flexible pad that has 3M automotive adhesive on the back, the UltiMount can be removed without leaving any residue. **HRO Price $24.95**



LoBoy Mount
LM-600

A universal, low profile mount for securing hands free cradles, XM and Sirius satellite radios, TFT displays and more. The LoBoy features an integrated swivel which allows easy adjustment in any direction, holding securely without locking or tightening levers. The flexible mounting pad with its 3M adhesive back makes installations fast, simple and strong. **HRO Price $14.95**

Nifty!

NEW!



Desk Stands

Radio not included



The HT Desk Stand sports a glossy jet black finish. Main support plate and shelf are made of very tough and durable polycarbonate and the steel base has a heavy-duty powder coat finish. This thing looks great! Adjustable to fit all hand held radios. Provides solid stable support, holding the radio at a convenient viewing and operating angle. **HRO Price $34.95**



NEW!



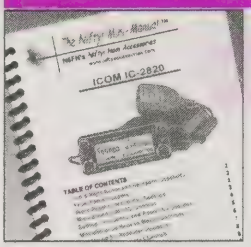
Radios not included

Desk Stands are custom designed to perfectly fit your radio, providing an ideal angle for viewing the display, and stable support for touching buttons on the screen and working the controls.

Your radio securely attaches to the stand using two thumbscrews for the mounting holes at the back of the control head. An additional four rubber feet are provided for use with the main body of the radio allowing it to also be placed on the desk top.

HRO Price Icom ID-5100	**$25.95**
HRO Price Icom IC-2730	**$25.95**
HRO Price Elecraft PX3	**$23.95**
HRO Price	**$23.95**
Yaesu FTM-400DR	

Radio Manuals



Nifty Mini-Manuals

Mini-Manuals are fully laminated, spiral bound booklets, 4.25 x 8 inches, providing simplified step-by-step instructions for all your radio's features. These short-form manuals are smaller, more durable, and easier to use than manuals normally supplied with a radio.

Kenwood

Model	Mini-Manual Description	HRO Price
NIFTY-TH-F6A	Mini Manual TH-6A	$21.95
NIFTY-TH-D72A	Mini Man + Ref Card	$24.95
NIFTY-TH-K20/K40	Ref Card TH-K20/40	$5.95
NIFTY-TM-271/281	Ref Card TM-281	$5.95
NIFTY-TM-D700A	Mini Manual TM-D700A	$16.95
NIFTY-TM-D710A	Mini Manual TM-D710A	$19.95
NIFTY-TM-G707A	Ref Card for TM-G707A	$5.95
NIFTY-TM-V71A	Mini Manual TM-V71A	$18.95
NIFTY-TS-2000	Mini Manual TS-2000	$18.95
NIFTY-TS-480S/HX	Mini Manual TS-480	$18.95
NIFTY-TS-570D/S	Mini Manual TS-570	$16.95
NIFTY-TS-590S/G	Mini Manual TS-590S/G	$19.95

MFJ

Model	Mini-Manual Description	HRO Price
NIFTY-MFJ259B	Mini Manual MFJ-259B	$12.95
NIFTY-MFJ269	Mini Manual MFJ-269	$12.95

Miscellaneous

Model	Mini-Manual Description	HRO Price
NIFTY-MM-BandPlan	Amateur Radio Band Plan	$10.95
NIFTY-D-STAR-BOOK	E-Z Guide to D-Star Operations Book	$13.95
NIFTY-DXGUIDE	DX Field Guide Book	$15.95
NIFTY-HT-STAND	HT Stand	$34.95
NIFTY-PSK31-BOOK	E-Z Guide to PSK31 Operations	$12.95
NIFTY-RADIOMG	Radio Montoring Guide	$15.95
NIFTY-ECHOLINK-BOOK	Guide to Echolink	$13.95
NIFTY-K3	Mini Manual Elecraft K3	$22.95
NIFTY-KX3	Mini Manual Elecraft KX3	$20.95
NIFTY-P3	Mini Manual Elecraft P3	$10.95

Yaesu / Wouxun

Model	Mini-Manual Description	HRO Price
NIFTY-FT450D	Mini Manual FT-450D	$20.95
NIFTY-FT817/ND	Mini Manual FT-817	$16.95
NIFTY-FT857/D	Mini Manual FT-857	$16.95
NIFTY-FT897/D	Mini Manual FT-897/897D	$16.95
NIFTY-FT991	Mini Manual FT991	$22.95
NIFTY-FTdx1200	Mini Manual FTdx-1200	$22.95
NIFTY-FT2000/D	Mini Manual FT-2000	$20.95
NIFTY-FTdx3000	Mini Manual FTdx-3000	$22.95
NIFTY-FTdx5000/D/MP	Mini Manual FTdx-5000	$22.95
NIFTY-FT1900	Mini Manual FT-1900	$16.95
NIFTY-FT2900	Mini Manual FT-2900	$16.95
NIFTY-FT7900R	Mini Manual FT-7900	$16.95
NIFTY-FT8800R	Mini Manual FT-8800	$16.95
NIFTY-FT8900R	Mini Manual FT-8900	$16.95
NIFTY-FT1DR	Mini Manual + Ref Card FT-1DR	$24.95
NIFTY-FT60R	Ref Card FT-60R	$5.95
NIFTY-FT250R	Ref Card FT-250R	$5.95
NIFTY-FT270R	Ref Card FT-270R	$5.95
NIFTY-FTM400DR	Mini Manual FTM-400DR	$22.95
NIFTY-VX3R	VX-3R Dual Card	$7.95
NIFTY-VX6R	Mini Manual + Ref Card VX6R	$20.95
NIFTY-VX8DR	Mini Manual + Ref Card VX8DR	$22.95
NIFTY-KGUV3	Ref Card KGUV 1/2/3	$5.95
NIFTY-KGUV6 Amateur	Ref Card KGUV6 series	$5.95
NIFTY-KGUV8	Dual Card Set KGUV8	$7.95

Alinco

Model	Mini-Manual Description	HRO Price
NIFTY-DJ-G29	Mini Manual DJ-G29	$22.95
NIFTY-DJ-G7T	Mini Manual DJ-G7T	$22.95
NIFTY-DX-SR8	Mini Manual DX-SR8T	$16.95
NIFTY-DJ-V57	Mini Manual DJ-V57	$19.95
NIFTY-DR-135/235/435	Ref Card DR-135/235/435	$5.95
NIFTY-DR-635T	Mini Manual DR-635T	$19.95

Icom

Model	Mini-Manual Description	HRO Price
NIFTY-IC-92AD	Operating Manual IC-92AD	$24.95
NIFTY-IC-R20	Mini Manual + Card IC-R20	$19.95
NIFTY-IC-2820H	Mini Manua IC-2820H	$20.95
NIFTY-IC-718	Mini Manual IC-718	$16.95
NIFTY-IC-7410	Mini Manua IC-7410	$20.95
NIFTY-IC-7000	Mini Manual IC-7000	$20.95
NIFTY-IC-7200	Mini Manual IC-7200	$16.95
NIFTY-IC-756PROIII	Mini Manual IC-756PROIII	$20.95
NIFTY-IC-2730	Mini Manual IC-2730	$16.95
NIFTY-IC-7100	Mini Manual IC-7100	$26.95
NIFTY-IC-7600	Mini Manual IC-7600	$24.95
NIFTY-IC-7700	Mini Manual IC-7700	$24.95
NIFTY-IC-7800	Mini Manual IC-7800	$24.95
NIFTY-IC-9100	Mini Manual IC-9100	$22.95
NIFTY-ID-31A	Mini Manual + Card ID-31A	$24.95
NIFTY-ID-51A	Mini Manual + Card ID-51A	$25.95
NIFTY-ID-5100	Mini Manual ID-5100	$24.95
NIFTY-ID-880H	Mini Manual ID-880H	$22.95



CQ DX World Guide

by Franz Lagner, DJ9ZB

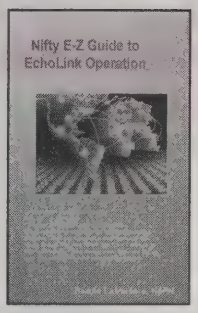
The third edition is the first using color throughout and the first to be entirely in English. It has entries for more than 300 DX "entities." Information includes geographical location, WAZ and ITU zones, ITU callsign allocations, and amateur prefixes. Each listing also has a map and flag, plus information on the country's licensing agency and national amateur radio society. Listings also include call areas, IOTA information and representative QSL cards. The Guide will be available in both print and digital (CD) formats. **HRO Price $42.95 in print and $22.95 on CD.**

Gordon West

Study with the Best!

Part Number	Description	HRO Price
Study Manuals		
GWTM	Technician Class Book	$21.95
GWTW	Technician Audio Theory Course on 4 CDs	29.95
NCS	Tech Book plus Software Package	29.95
GWGM	General Class Book	24.95
GWGW	General Audio Theory Course on 4 CDs	29.95
GWEM	Extra Class Book	29.95
GWEW	Extra Audio Theory Course on 6 CDs	44.95
ECS	Extra Book plus Software Package	44.95
HOS	W5YI Ham Operator Software – no books	27.95
HOSB	W5YI Ham Operator Software plus 3 books	79.95
GUS	General Book + software	29.95
Morse Code Study Materials		
GW05	Morse Code 0-5 wpm 8 CDs	39.95
GW13	Morse Code 6-16 wpm 8 CDs	39.95
GW20	Morse Code 10-28 wpm 8 CDs	39.95
GWCT	CW Refresher Course 0-5 wpm, 2 audio CDs	14.95
Other Books		
GSE	Getting Started in Electronics	19.95
MINI-1	Mini Notebook, Vol. 1: timer, op amps, optoelectronic circuits and projects	12.95
MINI-2	Mini Notebook, Vol. 2: science and communication circuits and projects	12.95
MINI-3	Mini Notebook, Vol. 3: electronic sensor circuits and projects	12.95
MINI-4	Mini Notebook, Vol. 4: electronic formulas, symbols and circuits	12.95
BELC	Basic Electronics	19.95
BDE	Basic Digital Electronics	17.95
BCE	Basic Communications (analog) Electronics	17.95
GROL +RADAR	Get Your Commercial Radio License – Book	49.95
GRSP +RADAR	Get Your Commercial Radio License – Book plus W5YI Study Software Package	79.95

AMATEUR BOOKS



Nifty E-Z Guide to EchoLink™ Operation

This ideal reference for those getting into EchoLink shows how to make contacts using your computer or DTMF equipped transceivers.

- Straight forward, simple explanations for both beginning & experienced users.
- Voice over Internet technology.
- EchoLink computer users, simplex links, and repeaters.
- Installing and using EchoLink software.
- Call sign validation and authentication.
- RF Link transceiver requirements.
- Establish RF EchoLink simplex and repeater nodes.
- Create a node by interfacing your transceiver to a computer.
- Configure EchoLink's sysop setup menus.
- Add EchoLink capability to a repeater.
- Numerous clear illustrations.

HRO Price $13.95

QSL Holders

QuickView
HRO Price: $9.95



International
HRO Price: $9.95



Flash Cards

Flash-and-*Pass*

Study for your license exams with these easy-to-use Flash and Pass study cards.

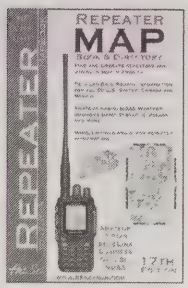
Technician Class Flash Cards
Flash-TECH HRO Price $24.95

General Class Flash Cards
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Extra Class Flash Cards
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artsci

U.S. Repeater Map Book
17th edition
USRG



The PERFECT traveling companion. Road maps show major highways and cities in every state. Amateur radio repeater frequencies are included. This is a must for truckers and travelers. Enhanced maps provide great highway detail. **HRO Price $17.95**

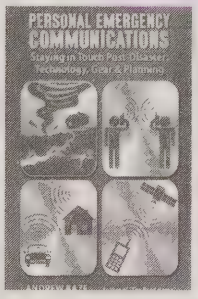
Ham Adventures

The Road Home
by Andrew Baze



Do you love an adventure? Especially when it includes ham radio in emergency communications, disasters and peril? Do you know any young adults who might be interested in radio? Would you like to learn more about disaster preparedness? Entertaining and informative for young and old alike, this well-reviewed book will hook you from the beginning and take you on a boy and father's trek back from the wilderness to the broken city where the rest of the family waits, unaware of the other danger lurking on their doorstep. **HRO Price $12.99**

Personal Emergency Communications
by Andrew Baze



Do you want to be prepared for the next power outage or a natural disaster? This book is written for everyone – no radio expertise required! It will tell you how to make your own realistic, simple emergency communication plan. When the chips are down, what will you do if your cell phone, land-line, and the Internet don't work? This book has the answer! **HRO Price: $14.99**

Reference Book



Pocket Reference
Fourth Edition

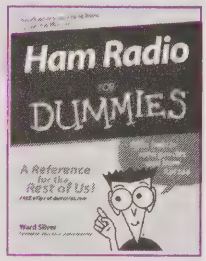
This concise all-purpose reference has hundreds of tables, maps, formulas, constants & conversions. More than 200 new pages and thousands of updates! **HRO Price $12.95**

Ham Radio For Dummies

Hams do cool things like talking to folks around the world and helping with communications during emergencies. If hamming it up sounds like fun, here's the scoop, including licensing requirements and how to set up a station. And if you're already licensed, this book will help you start sounding (and feeling) like a pro!

The Dummies Way

- "Get in, get out" information.
- Explanations in plain English.
- A dash of humor and fun.
- Cheat sheet.
- Icons and other navigational aids.
- Top ten lists.

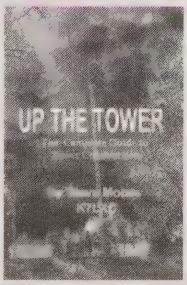


Discover how to:

- Set up a radio shack.
- Learn ham jargon.
- Be a ham on the go.
- Prepare for the license exam.
- Communicate on air.
- Help in an emergency or natural disaster.

HRO Price $21.99

Tower Guide



Up the Tower
The Complete Guide to Tower Construction
by Steve Morris, K7LXC

This is the first tower book of its type ever published. It includes abundant information on all aspects of tower construction, use, and care from the foundation to the antenna installation. Steve Morris gathered this collection of invaluable information during his years as a professional installer of amateur and commercial towers. Read about regulatory concerns, guy wires, safety equipment, and more. **HRO Price: $32.00**

Ham Magazines

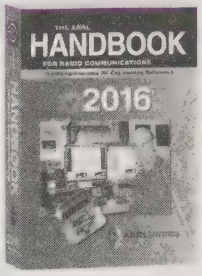
CQ	CQ Monthly
QST	QST Monthly

CQ Publications

ARC2016	Amateur Radio Calendar 2016
UBAUBAU	Understanding Building & Using Baluns & Ununs
LMOA	Lew McCoy on Antennas
DXWG	DX World Guide
HFANTHB	HF Antenna Handbook

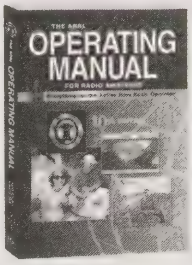
ARRL BOOKS

The ARRL Handbook for Radio Amateurs

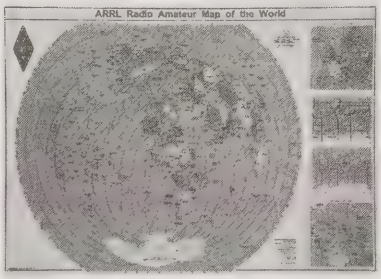


This 93rd edition of **The Handbook** continues to keep pace with the fast-moving technology employed around the world. Each chapter is full of practical hands-on information to expand your knowledge as an Amateur Radio operator and experimenter. There are projects for all skill levels, from simple accessories and small power supplies, to legal-limit amplifiers and high-gain antennas. The book is always updated with a look at new projects and expanded content included in the latest edition: Includes all of the fully searchable text and illustrations in the printed book, as well as expanded supplemental content, software, PC board templates and other support files.
Softcover w/CD $49.95
Hardcover w/CD $49.95

Operating Manual
10th Edition



The most complete book about Amateur Radio, written to guide you through every mode and technology. Indispensable information to sharpen the skills of all active hams. It's full of technical to public service information that every ham needs to know, from newcomers to the more experienced. **HRO Price: $27.95**



ARRL MAPS

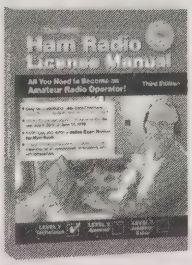
AWM	World Map (Azimuthal)
GRID ATLAS	Grid Locator Atlas
GRID MAP	Grid Locator Map
MONA	Amateur Radio Map of North America

ARRL LISTINGS

DXCC LIST	Official ARRL DXCC List
LB	Log Book
RD	Repeater Directory

Study With ARRL

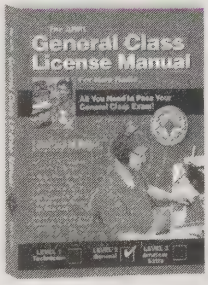
Use ARRL License Manuals with ARRL online Exam Review for Ham Radio



Ham Radio License Manual

Includes the latest complete question pool with answer key and explanations for use to pass the 35-question license test. Designed for self-study or classroom use. Take as many randomly-generated practice exams as you want. Discover the unique mix of technology, public service, convenience, and fun that makes up ham radio. **HRO Price $29.95**

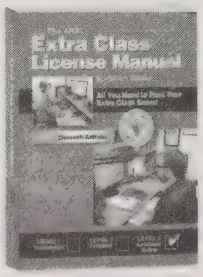
General Class Ham Course



The fastest way to General Class License
8th Edition

Covers all material you need to pass the General Class License exam. Each topic is divided into bite-sized lessons with colorful illustrations covering procedures, practices, regulations, components, circuits, equipment, propagation, electrical safety and more. Go to ARRL's online service to review topics and take practice exams with the same number and variety of questions that you'll encounter on exam day. A new spiral bound edition is available separately. **HRO Price $29.95**

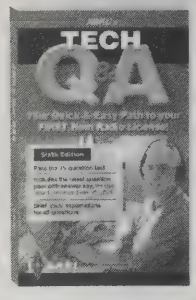
Extra Class License Manual
Revised
11th Edition



Here is your ticket to every privilege granted to Amateur Radio Operators. Our expert instruction leads you through all the knowledge needed to pass the 50-question exam: rules, specific operating skills and more advanced electronics theory. To upgrade to Extra Class you must already hold a General Class license then pass a written examination. A new spiral bound edition is available separately. **HRO PRICE $29.95**

ARRL's Tech Q&A

Take a quick, easy path to your first ham license. Pass the 35-question Technician class examination by studying this question pool with brief, clear explanations.
6th Edition Retail $17.95



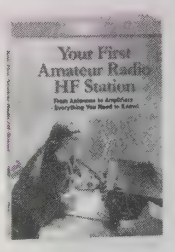
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Getting Started With Ham Radio

Get on the air now! A guide to your first Amateur Radio station. Select radios and antennas, explore operating modes, and assemble your station. **HRO Price: $19.95**

Your First Amateur Radio HF Station



Here is practical advice on choosing your first radio, antenna, computer, software, and accessories. Explains the best way to set them up, how to safely hook up to power while protecting your gear. Explains where to put your priorities. **HRO Price: $19.95**

Centennial Keepsakes

A History of QST

Volume 1
Amateur Radio Technology as seen in QST.
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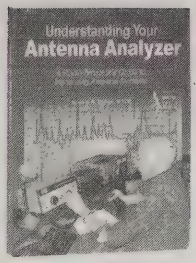


Volume 2
Advertising Highlights of Amateur Radio. Technical Contributions & Advertising History in QST in the last 100 years.
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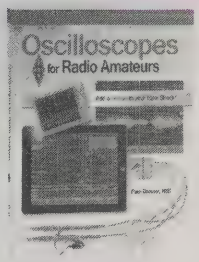
Understanding Your Antenna Analyzer



HRO Price: $22.95

A radio amateur's guide to understandiing antenna analyzers.

Oscilloscopes for Radio Amateurs

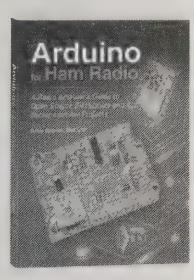


Oscilloscopes allow radio amateurs to "see" the signals inside their equipment. A variety of analog, digital or hybrid scopes is available to hams. *Oscilloscopes for Radio Amateurs* is filled with practical information you'll need for using a scope from an overview of the oscilloscope to the characteristics, applications, probes, controls, and input modes. If you're considering adding this piece of test equipment to your ham shack, there is an explanation of scope specifications and features to help you select one that is right for you. **HRO Price $19.95**

MORE ARRL TECHNICAL BOOKS

EMRFD	Experimental Methods in RF Design
HK	Hints and Kinks (18th ed.)
HRE	Hands on Experiments
LBD	Low Band DXing (5th ed.)
RFE	RF Exposure and You
RFI	Radio Frequency Interference

Arduino for Ham Radio



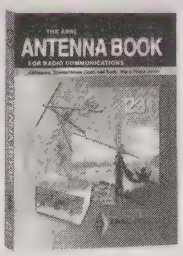
The Arduino has become widely popular among hobbyists and ham radio operators. Hams are exploring these powerful, inexpensive microcontrollers, creating new projects and amateur station gear. With its open source model, the Arduino community freely shares software and hardware designs, making projects easier to build and modify.

Arduino for Ham Radio introduces you to the exciting world of microcontrollers and opensource hardware and software. It starts by building a solid foundation through descriptions of various Arduino boards and add-on components, followed by a collection of ham radio-related practical projects. Beginning with simple designs and concepts and gradually increasing in complexity and functionality, there is something here for everyone. Projects can be built quickly and used as-is, or they can be expanded and enhanced with your own personal touches.

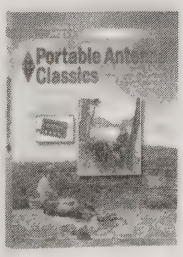
Projects include: Random Code Practice Generator, CW beacon, Foxhunt Keyer, and talking SWR meter. **HRO Price $29.95**

Antennas

Antenna Book
23nd Edition



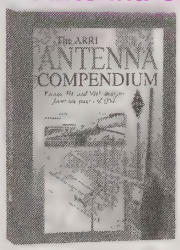
The ARRL Antenna Book describes hundreds of antenna designs: wire, vertical, portable and mobile, and new high-performance VHF/UHF Yagi designs. Radio amateurs continue to make contributions to the state of the art in antenna design and construction. Includes all of the fully searchable text and illustrations in the printed book, plus utility programs and supplemental content from expert contributors. Includes New Projects and new information. **Retail $49.95**



Portable Antenna Classics

For amateurs who are unable to install permanent outdoor antennas at home, portable installations are often the only way they can get on the air. There are also amateurs who simply enjoy operating outdoors, in nature. For them, portable antennas are necessities. **HRO Price: $19.95**

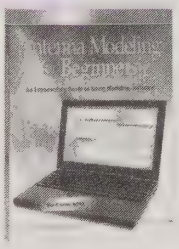
Antenna Compendium
Volume 8



Inside are 60 articles from QST magazine featuring practical ideas, tips, and some of the best antenna projects. You'll find designs such as the Handy Yagi Antenna, Compact 40 Meter HF Loop, 20 and 40 Meter verticals on "autopilot," and much more. **HRO Price $24.95**

Antenna Modeling for Beginners

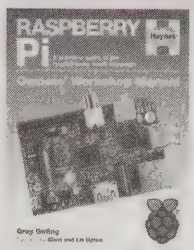
With software that is now available you can model your antenna design and optimize performance for your application. It provides a detailed introduction to the popular EZNEC modeling program. **HRO Price: $34.95**



MORE ARRL ANTENNA BOOKS

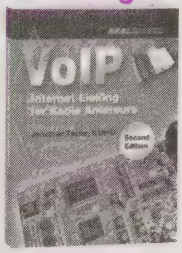
ACVOL5	Antenna Compendium Vol. 5
ACVOL7	Antenna Compendium Vol. 7
RSGB-WIRE	Wire Antennas

Raspberry Pi Workshop Manual

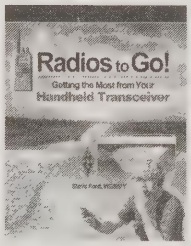


This manual is the perfect introduction to the affordable small Raspberry Pi computer, from switching it on for the first time, through the full process of setup and configuration. Various aspects of computing and programming are introduced, providing a variety of recipes to demonstrate the acclaimed versatility of Raspberry Pi's hardware and software. **HRO Price: $28.95**

VoIP: Internet Linking for Radio Amateurs



Your complete guide to the most widely-used VoIP systems used by hams; with particular attention to EchoLink and the Internet Radio. **HRO Price: $21.95**

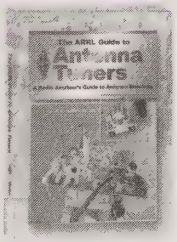


Radios to Go!

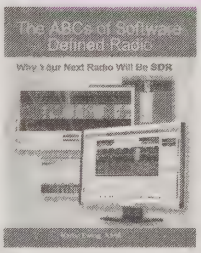
There is a wealth of features in the latest handhelds. Many of the features are hidden and it is not easy to get full benefit from your investment. This publication is an essential guide. **HRO Price: $15.95**

Guide to Antenna Tuners

Explore the design, construction, and applications of different types of antenna tuners. Gain a better understanding of your antenna system and how it can be improved by using the appropriate antenna tuner. **HRO Price: $22.95**

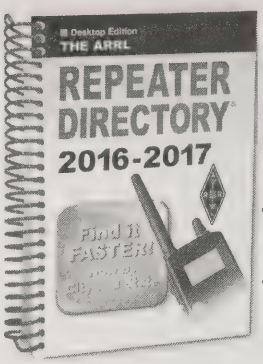


ABC's of Software-Defined Radio



An introductory guide to SDR and Digital Signal Processing (DSP) technologies. It offers a straightforward look inside SDR and provides a foundation for those who want to understand the subject on a more fundamental level. **HRO Price: $19.95**

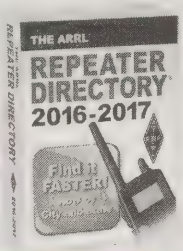
FIND A REPEATER



ARRL 2016-17 Repeater Directory

- Thousands of FM voice and ATV repeater frequencies.
- Latest directory of frequency coordinators.
- Coverage of North, Central, South America, and some listings in Europe and the Middle East.
- Now including IRLP (Internet linked) nodes.

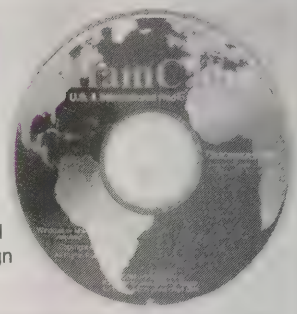
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FIND A HAM

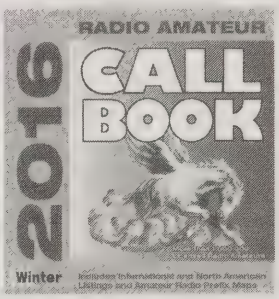
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The first and only database with more than 2,220,000 callsigns; it is the most complete callsign database available. Includes 6 months of internet updates and HamCall.net Gold Password for full access to HamCall.net website including callsign search, advanced search, and DX Spots.

- More than 2,220,00 US and international listings.
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- Install to hard drive or run from DVD.
- Country flag & map for each call sign.
- Search by callsign, class, name, street address, city, state, postal code, county, country, or QSL manager.
- Double click on e-mail address to send email or a web address to visit it.
- Interactive world map display.
- Prints mailing labels or all information.
- Supported by more than 40 logging programs and software packages.

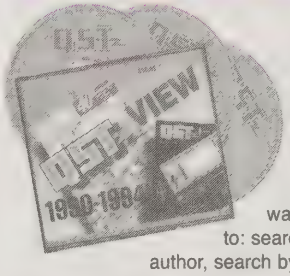


Radio Amateur Callbook CD-ROM 2016
HRO Price $49.95

This is the most extensive radio amateur directory on the market. Incorporating both the North American and International editions of the world's most respected callbooks, it provides more than 1.6 million listings in more then 250 countries, islands, and dependencies. By including several countries not found in other directories, the Callbook offers unmatched world coverage.

- Data display by callsign, last name, city, license class, issue, and expiration dates.
- Search U.S. stations by callsign, last name, and city.
- Search international by callsign, last name, city. Text search by name, street, city, province, or region after selecting country.
- Unique sound output of Morse code alphabet can be used by the blind or anyone learning Morse code.
- Windows / DOS platform.
- Windows clipboard tool for single label or applications. Import data into logging spread sheet, word processor, or label printing program. Logging program interface available.
- Listings of clubs, "Then and Now" call changes, military, and silent keys.
- Text files listing prefixes by countries (40 zones), DXCC countries list, census of amateur prefixes, QSL bureaus, reciprocal operating agreements, 10-meter beacons, 6-meter beacons, international "Q" signals, and more.

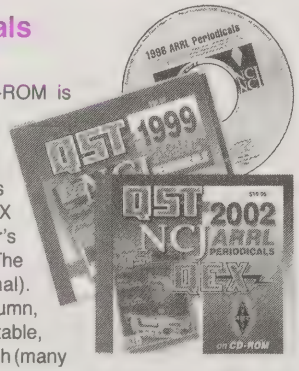
ARRL CD-ROMs



QST View

Back issues of QST on CD-ROMs. All the ads, articles, columns and covers have been scanned in black-and-white to read on screen or print. Easy-to-use software included allows you to: search for articles by title and author, search by specific year and issue, and browse individual articles. Available sets: 1990-94; 1985-89; 1980-84; 1975-79; 1970-74; 1965-69; 1960-64; 1950-59; 1940-49; 1930-39. Each set is indexed. Requires Windows 3.1 or higher. **Each set $39.95**

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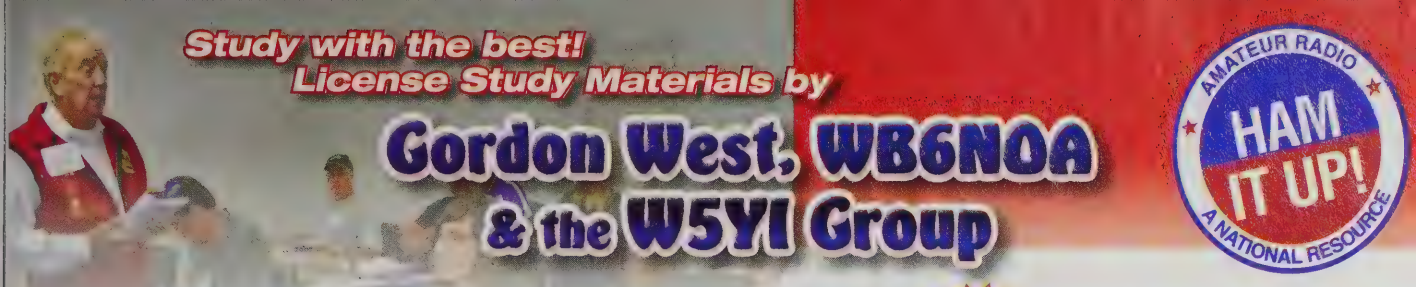
Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Catalog Prices

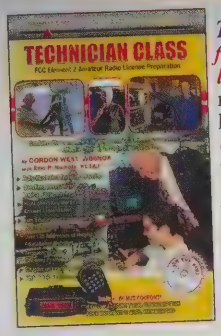
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Many manufacturers offer "coupons" or similar promotions. Call or check our Secure Web Page at http://www. hamradio.com for the latest promotions.



TECHNICIAN CLASS



***Technician Class* book**
for the 2014-2018 entry level exam! Gordo reorganizes the Q&A into logical topic groups for easy learning! Key words are highlighted in his explanations to help you understand the material for test success. Web addresses for more than 125 helpful, educational sites. Includes ***On The Air*** CD demonstrating Tech privileges. **W5Y GWTM-14 $21.95**

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Gordo's book with W5YI software allows you to study at your computer and take practice exams. Explanations from Gordo's book are on the software – answer a question wrong and his explanation appears to reinforce your learning. Includes free Part 97 Rule Book. **W5Y NCS-14 $29.95**

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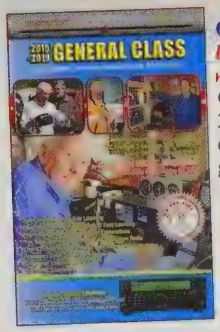
GROL + RADAR



Get your FCC commercial radio licenses and add valuable credentials to your resume!
GROL+RADAR includes the new FCC Element 1 question pool for the Marine Radio Operator Permit (MROP), the Element 3 pool for the General Radiotelephone Operator License (GROL), and the Element 8 pool for the RADAR Endorsement. Many employers require these licenses for jobs in marine, aero, safety, and municipal positions. Gordo and his team have written clear explanations for all the Q&A to make studying for these exams educational and fun. If you're an Extra Class ham, many of the technical/math questions will look familiar to you. Fully-illustrated to aid your learning. Book includes a searchable CD-ROM with all FCC Rules for Parts 2, 13, 23, 73, 80 and 87. **W5Y GROL-09 $49.95**

GROL+RADAR book & software package
Enhance your learning experience using our practice exam software along with the ***GROL+RADAR*** book. Software includes answer explanations from the book – when you select a wrong answer, the explanation from the book appears to reinforce your learning. **W5Y GRSP-09 $79.95**

GENERAL CLASS



***General Class* book**
Upgrade to the HF bands with Gordo & W5YI! Gordo's manual for 2015-2019 reorganizes all the questions into logical topic groups for easier learning. His explanations include highlighted key words to help you remember the material for test success. Companion CD is full of great operating tips!
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***Extra Class* book**
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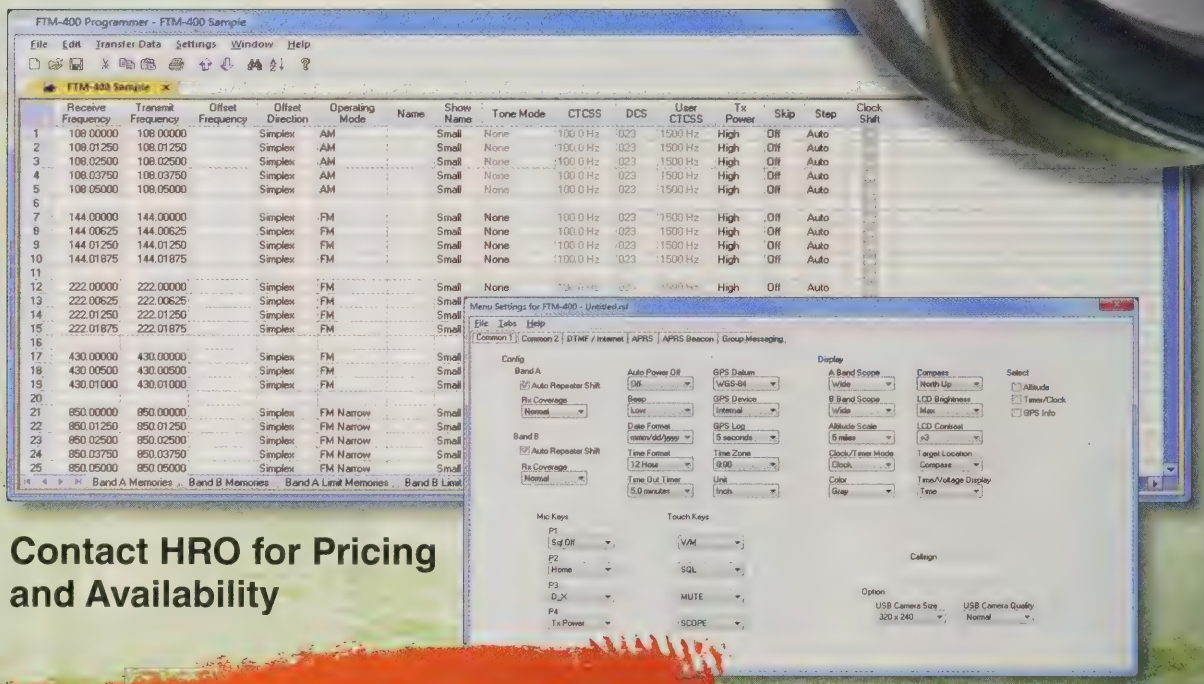
rt SYSTEMS

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IC-7600

HF / 50MHz All Mode Transceiver

IC-7700

HF / 50MHz Transceiver





IC-7851

The Ultimate HF / 6m Transceiver

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ICOM®

Frequency coverage may vary. Refer to owner's manual for exact specifications.
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IC-9100

HF / 6m / 2m / 70cm



NEW

IC-7300

HF / 50MHz Transceiver



IC-7100

HF / 6m / 2m / 70cm

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As of 2/2016, the IC-7300 has not been approved by the Federal Communications Commission. This device may not be sold or leased, or be offered for sale or lease, until approval of the FCC has been obtained. Frequency coverage may vary, refer to owner's manual for exact specifications.

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ICOM®

YouTube

Escape with the TM-281A

On or off the road, Kenwood's TM-281A is a mobile radio you can always count on.



As tough as nails, this MIL-STD-compliant transceiver delivers powerful performance, excellent audio clarity, and a host of advanced features. It offers superb operating ease day or night thanks to the large backlit LCD and illuminated keys. So the next time you take off, take the TM-281A.

KENWOOD

Customer Support: (310) 639-4200
Fax: (310) 537-8235

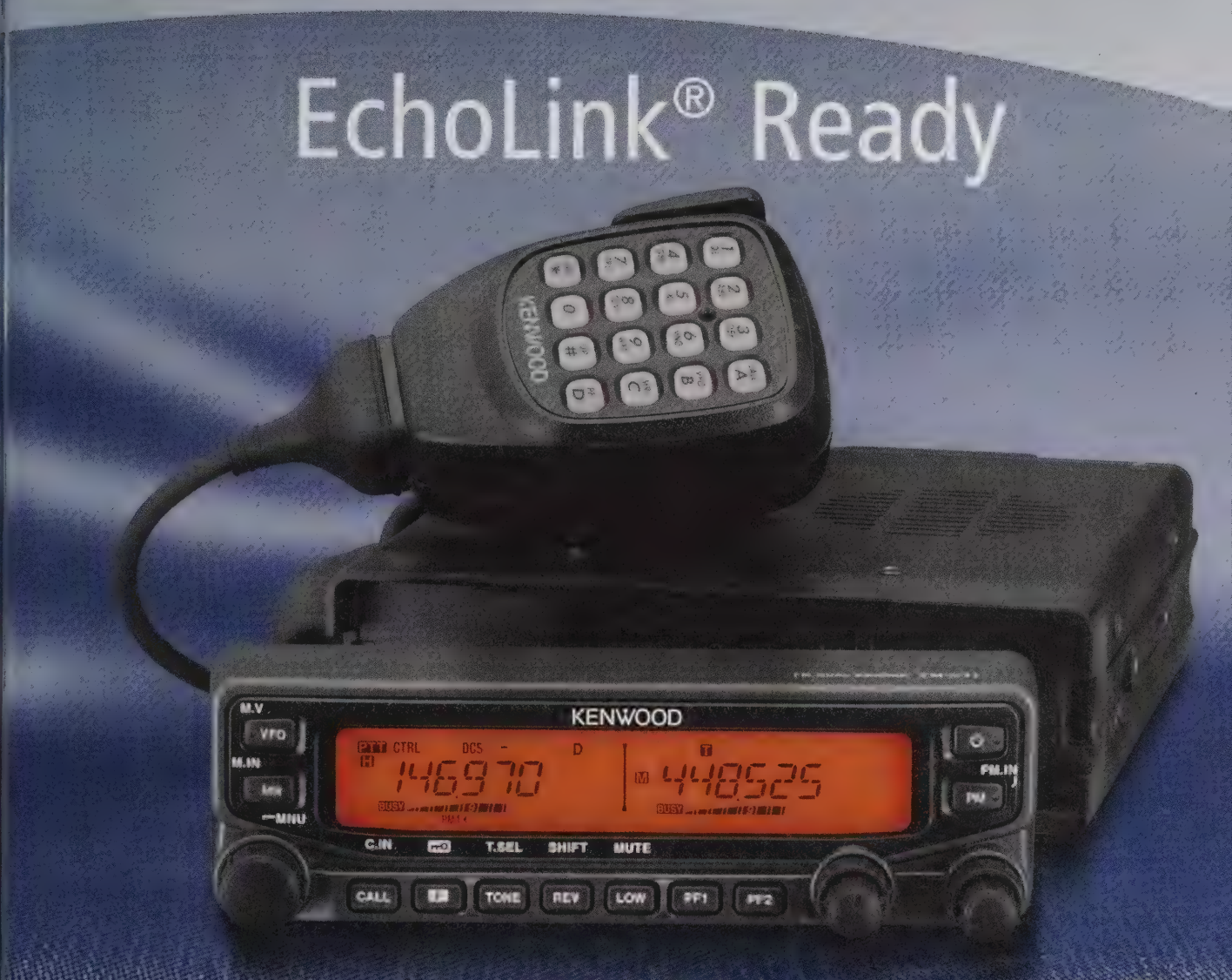
www.kenwood.com/usa

ISO9001 Registered

ADS#07216

Scan with your phone to download TM-281A brochure

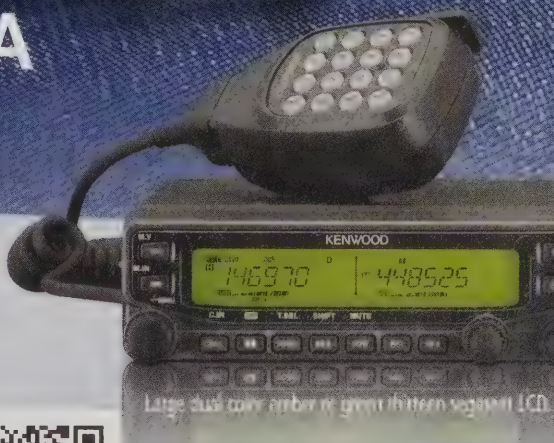
EchoLink® Ready



TM-V71A

With the Kenwood TM-V71A you have a choice of where you want your speaker, on the top or on the bottom of the radio. Simply remove the faceplate and flip the main body, then reattach the face, it's that simple! Yet another Kenwood **1st**, this dual band transceiver has ten dedicated EchoLink® memory channels as well as EchoLink sysop-mode operation. EchoLink connection to your PC via the optional PG-5H cable kit is easy with no expensive interface needed.

EchoLink® is a registered trademark of Synergenics, LLC. For more information please see: www.echolink.org.



KENWOOD

Customer Support: (310) 639-4200
Fax: (310) 537-8235

Scan with your phone to download TM-V71A Brochure.

www.kenwood.com/usa

ISO9001 Registered

ADS#07316

Yaesu Celebrates Its 60th Anniversary from 1956 to 2016, Reaffirming Our Commitment to Achieving Superiority and Excellence in Performance.



Yaesu is a unique company making innovative communications equipment. Our Founder's vision of pursuing excellence and excitement in our products has been our goal for 60 years, and we constantly endeavor to achieve this goal through the passion, enthusiasm and diligence of all of our employees.

Yaesu will continue to achieve new milestones in the coming decade through unique design, innovation, and hard work, while never forgetting the needs of our customers.

We firmly believe that these efforts will ensure that our technologies and products not only appeal to the minds, but also the hearts of our customers.

60th Anniversary

YAESU
60th Anniversary



C4FM/FM 144/430 MHz Dual Band 5 W
Digital Transceiver

FT2DR

《 Improved 66 ch GPS receiver included 》



New

C4FM/FM 144/430 MHz Dual Band 5 W
Digital Transceiver

FT1XDR

《 Improved 66 ch GPS receiver included 》



C4FM/FM 144/430 MHz Dual Band 50 W
Digital Transceiver

FTM-100DR

《 Improved 66 ch GPS receiver included 》



New

C4FM/FM 144/430 MHz Dual Band 50 W
Digital Transceiver

FTM-400XDR

《 Improved 66 ch GPS receiver included 》



New

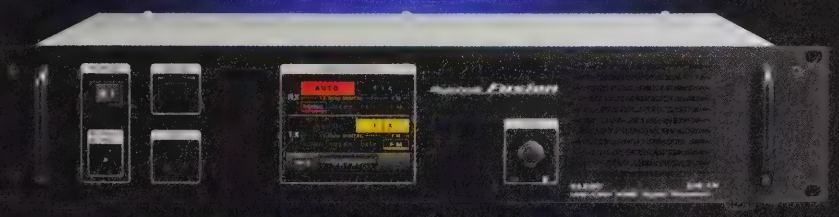
C4FM/FM 144 MHz 65 W
Digital Transceiver

FTM-3200DR

《 Genuine 65 Watts High Power 》

System Fusion

The best solution for the Future
It provides total integration and compatibility of both digital and conventional FM communications



C4FM/FM 144/430 MHz Dual Band Digital Repeater

DR-1X

YAESU
60th Anniversary

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Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

FT2DR

144/430 MHz DUAL BAND DIGITAL TRANSCEIVER

Advanced C4FM Technology Opens up New Vistas for Amateur Radio

- C4FM Digital with FM Friendly AMS
- Advanced Touch Panel Operation
- Huge 1.7" × 1.7" Full-dot Matrix Display
- Snapshot Image Display
- Simultaneous C4FM/C4FM standby
- New Digital Features



C4FM
DIGITAL CLEAR VOICE
Clear and Crisp Voice Technology

AMS
Automatic Mode Select

WIRES-X

YAESU
The radio

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FTM-100DR

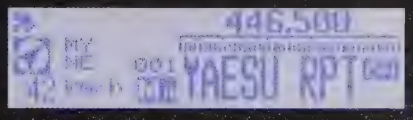
C4FM/FM 144/430 MHz DUAL BAND DIGITAL TRANSCEIVER

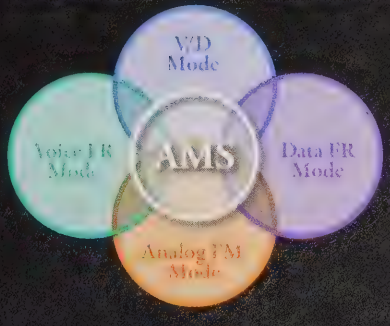


A Digital Mobile Transceiver for a New Age

Advanced C4FM Technology Makes Possible a Wide Variety of Mobile Operations

- Easy-to-read graphical interface for user-friendly operation
- C4FM Digital with FM Friendly AMS
- Bright multi-colored Mode/Status Indicator to visibly and clearly inform the current state of the transceiver
- Powerful 50 Watts RF output for VHF/UHF Amateur bands
- Supports WIRES-X internet linking and worldwide communication system for amateur radio
- Establish an internet WIRES-X node station (Requires optional HRI-200)





C4FM Clear and Crisp Voice Technology

AMS Automatic Mode Select

WIRES-X

YAESU The radio

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The radio... YAESU

FT-991

HF/VHF/UHF
ALL MODE TRANSCEIVER

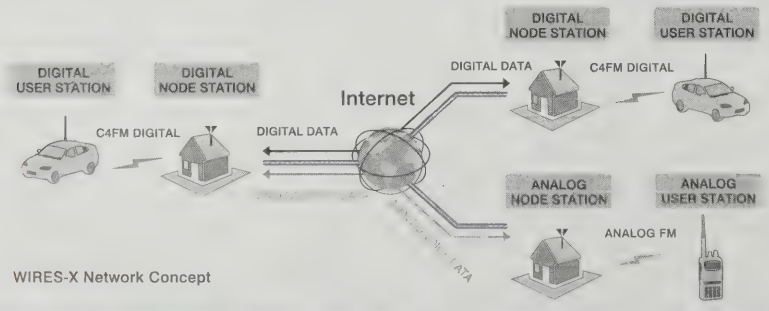


New generation all-band transceiver FT-991 offers full-fledged support for all modes including HF/50/144/430 MHz in a single compact unit

{New Feature} High Quality Digital C4FM voice over the WIRES-X internet VoIP network

- Triple conversion with 1st IF frequency of 69.450MHz for all bands
- Narrow band 3 kHz roofing filter provided in standard configuration realizes excellent adjacent multi signal characteristics
- Features the highly acclaimed FTDX series quad mixer, along with a dedicated VHF/UHF mixer
- Highly effective interference removal functions are great for stress-free QSOs on the DX and Contest scene
- Final Stage with Ample Power Reserves: 100 W for HF/50 MHz Bands and 50 W for VHF/UHF Bands
- Advanced technologies fully utilize the potential of C4FM Digital including high-quality transmit audio, AMS, and Group Monitor functions

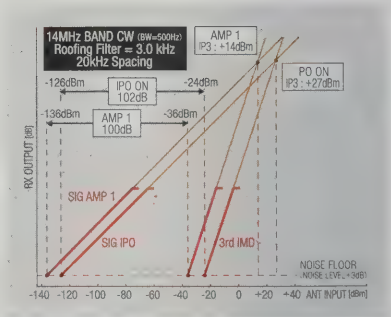
* The FT-991 does not support the News Station function or direct HRI-200 connectivity as Digital Node station.
* Data FR mode (high speed data communication mode) is not supported therefore image send/receive by C4FM digital is not possible.



WIRES-X Network Concept

C4FM
DIGITAL CLEAR VOICE
Clear and Crisp Voice Technology

WIRES-X



IDR (IMD Dynamic range) / IP3 (3rd-Order Intercept Point) characteristics

HF/VHF/UHF
100 W All Mode Transceiver

FT-991

(144 MHz/ 430 MHz 50 W)

YAESU
The radio

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Field Gear
That Goes The Distance!





FT-991

WIRES-X

New generation HF/VHF/UHF
All Mode Compact Base Station Transceiver

- 100 Watts (2 Meter / 70 Centimeter: 50 Watts) of Solid Performance
- Roofing Filters 3 kHz and 15 kHz as standard equipment
- IF DSP is Famous for Superb Interference Rejection
- Advanced Spectrum Scope Function With Waterfall Display
- 3.5 inch TFT Full-Color Touch Panel Operation



FT-450D

HF/50 MHz 100W
Easy to Operate All Mode Transceiver

- The Real DX Receiver Design for Amateur Operators
- Buit-in HF/50 MH z Automatic Antenna Tuner
- Proven performance and technology with YAESU IF DSP
- The 4 Pole Roofing Filter (MCF) and 8 Band pass Filter at the RF stages
- Rugged aluminum die-cast with large cooling fan
- Ultra Compact Design (9.0" x 3.3" x 8.5" WHD)



FT-857D

The World's Smallest HF/VHF/UHF
Mobile Transceiver

- Ultra-Compact Package (6.1" x 2.0" x 9.2" WHD)
- Ideal for Mobile or External Battery Portable Work
- The 4 Pole Roofing Filter (MCF) and 8 Band pass Filter at the RF stages
- Big Radio Tuning Dial and Outstanding Ergonomics
- High-Performance Mobile Operation



FT-817ND

The Ultimate Backpack,
Multi-Mode Portable Transceiver

- Incredibly Small Size (5.3" x 1.5" x 6.5" WHD) and Light Weight (under 2 pounds)
- Ni-MH Battery Pack FNB-85 and Battery Charger PA-48 Included
- Covering the HF,VHF, and UHF Bands
- Compact Design Yields up to 5 Watts
- SSB, CW, AM, FM, Packet, or SSB-based Modes like PSK31

YAESU
The radio

YAESU USA
6125 Phyllis Drive, Cypress,
CA 90630 (714) 827-7600

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The radio... YAESU

HF/50 MHz 100 W Transceiver

FT DX 3000

New Crystal Roofing Filters provide ultimate weak signal receiver performance in crowded, strong signal environments



[New Feature] Waterfall Display with High Speed Spectrum Scope

Easily find your way around on today's busy bands with Yaesu's FTDX3000D spectrum scope display.

Amazing Crystal Roofing Filter performance

Down conversion 9 MHz 1st IF frequency construction allows for very tight narrow 300 Hz (option), 600 Hz and 3 kHz bandwidth roofing filters.

Outstanding receiver performance, the heritage of the FTDX5000!

High dynamic range IP3 performance originally designed for and proven in the FTDX5000.

IF DSP provides effective and optimized QRM rejection

Outstanding performance during challenging crowded band situations like DXing and Contesting.

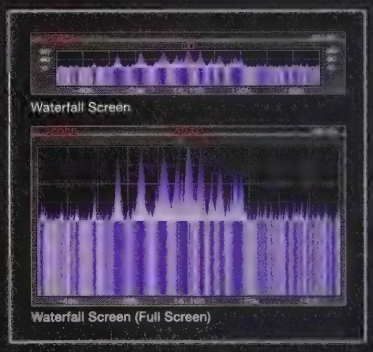
Independent Frequency display

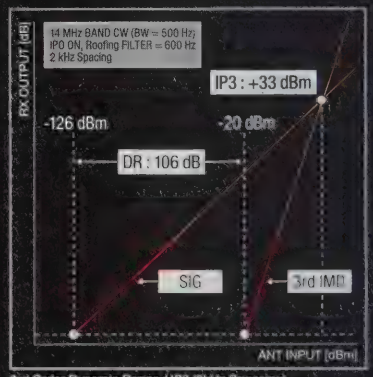
The newly developed LCD has a wider viewing angle and higher contrast.

4.3-inch Large and wide color LCD display with high resolution

Easy to read with many functions to chose from.

AF SCOPE display and RTTY/PSK encoder/decoder





3rd Order Dynamic Range / IP3 (2kHz Spaceing)

YAESU
The radio

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The Answer ...

Equipped with Extra Sharp 6-pole Crystal Roofing Filters

The Premium HF / 50 MHz Transceiver FT DX 5000

The Newly designed 9 MHz 1st IF of the FT DX 5000 main receiver implements sharp 6-pole* crystal roofing filters. *8-pole / 3 kHz
Superior close-in dynamic range affords the serious DX'er the best performance possible.



HF/50 MHz 200 W Transceiver

FT DX 5000MP *Limited*

200 W / Class-A 75 W

±0.05 ppm OCXO included
300 Hz, 600 Hz, and 3 kHz Crystal Roofing Filters included
*Station Monitor SM-5000 is optional accessory for the FTDX5000MP Limited.

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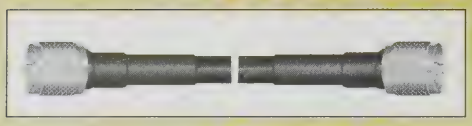
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Buy With Confidence

ABR Industries manufactures all assemblies in our Houston facility, guaranteeing quality control from start to finish. Being a critical component of your system or station, it's important to know where and how your coax cable assemblies are built.

Not All Cable Assemblies are Created Equal... See the ABR Difference.



2213A RG213/U MIL-SPEC
Non-contaminating Direct-Burial Ultra-Violet Resistant Jacket.
W/SILVER-TEFLON PL259 & WEATHERPROOF HST each end.

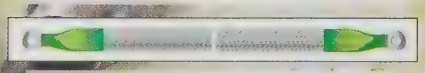
Attenuation per 100ft	Power Rating	Efficiency%
0.6dB @ 10MHz	3.43kW	87%
1.0dB @ 30MHz	1.95kW	79%
1.4dB @ 50MHz	1.5kW	73%
2.4dB @ 150MHz	.83kW	57.1%
4.5dB @ 450MHz	.45kW	35.8%

Part #	Length/Ft
2213A-PL-3	3
2213A-PL-25	25
2213A-PL-50	50
2213A-PL-75	75
2213A-PL-100	100
2213A-PL-150	150



1" Tinned Copper Flat Ground Braid. 7ga 85/Amps
w/1/4" Stud Ring Terminals. Quick &
Easy Grounding Terminations.

Part #	Length/Ft
235-5X-20	20
235-5X-10	10
235-5X-5	5
235-5X-3	3



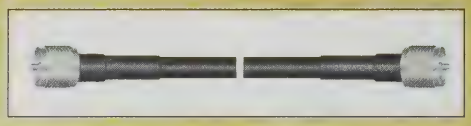
1/2" Tinned Copper Flat Ground Braid. 10ga 53/Amps
w/#10 Stud Ring Terminals. Quick &
Easy Grounding Terminations.

Part #	Length/Ft
233/2-4X-12	12
233/2-4X-10	10
233/2-4X-5	5
233/2-4X-3	3
233/2-4X-1	1



233/2-G4-(length)
Unique design (Nickel Grommets 4" Spacing) allows
for easy attachment to a vehicle's body or truck bed
to create a "ground plane"
Good option as a buss-bar in the shack
½" wide tinned copper 38x48x8/34 10ga 53 amps

Part#	Length/Ft
233/2-G4-10	10
233/2-G4-5	5
233/2-G4-3	3
233/2-G4-1.5	1.5



218XA RG8X (240F) Foil+TC Braid
Non-contaminating Direct-Burial Ultra-Violet Resistant Jacket.
W/SILVER-TEFLON PL259 & WEATHERPROOF HST each end.

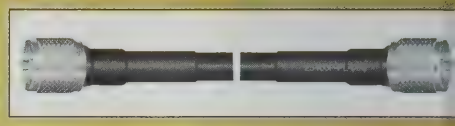
Attenuation per 100ft	Power Rating	Efficiency%
0.9dB @ 10MHz	2.16kW	80%
1.4dB @ 30MHz	1.24kW	69%
2.1dB @ 50MHz	0.96kW	62%
3.6dB @ 150MHz	1.55kW	43.5%
6.3dB @ 450MHz	1.31kW	23.2%

Part #	Length/Ft
218XA-PL-1.5	1.5
218XA-PL-3	3
218XA-PL-6	6
218XA-PL-9	9
218XA-PL-12	12
218XA-PL-18	18
218XA-PL-30	30
218XA-PL-40	40
218XA-PL-50	50
218XA-PL-75	75
218XA-PL-100	100
218XA-PL-125	125
218XA-PL-150	150
218XA-PL-200	200



RG316/U Teflon® .100" OD
HT jumpers "antenna attachment for better coverage"

Part#	Description	Length/Ft
23316-NM-3	N Male Both ends	3
23316-NM-6	N Male Both Ends	6
23316-SM-SF-3	SMA Male-SMA Female	3
23316-SM-SF-6	SMA Male-SMA Female	6
23316-SM-SF-9	SMA Male-SMA Female	9
23316-SM-SF-12	SMA Male-SMA Female	12
23316-SM-SF-15	SMA Male-SMA Female	15
23316-SM-3	SMA Male Both Ends	3
23316-SM-6	SMA Male Both Ends	6
23316-SM-PL-3	SMA Male-PL259	3
23316-SM-PL-6	SMA Male-PL259	6
23316-SM-SO-3	SMA Male-SO239	3
23316-SM-SO-6	SMA Male-SO239	6



25400F 400-FLEX (RG8/U TYPE) FLEXIBLE LOW LOSS
Non-contaminating Direct-Burial Ultra-Violet Resistant Jacket.
W/SILVER-TEFLON PL259 & WEATHERPROOF HST each end.

Attenuation per 100ft	Power Rating	Efficiency%
0.8dB @ 30MHz	2.77kW	83.0%
1.1dB @ 50MHz	2.14kW	78.5%
1.8dB @ 150MHz	1.22kW	65.4%
3.3dB @ 450MHz	0.69kW	47.3%

Part #	Length/Ft
25400F-PL-1.5	1.5
25400F-PL-3	3
25400F-PL-6	6
25400F-PL-12	12
25400F-PL-18	18
25400F-PL-35	35
25400F-PL-50	50
25400F-PL-75	75
25400F-PL-100	100
25400F-PL-150	150



25400F 400-FLEX (RG8/U TYPE) FLEXIBLE LOW LOSS
w/N Male plugs each end. Complete
w/Weatherproof Heat Shrink Tubing (WP-HST)

Attenuation per 100ft	Power Rating	Efficiency%
0.8dB @ 30MHz	2.77kW	83.0%
1.1dB @ 50MHz	2.14kW	78.5%
1.8dB @ 150MHz	1.22kW	65.4%
3.3dB @ 450MHz	0.69kW	47.3%

Part #	Length/Ft
25400F-NM-3	3
25400F-NM-6	6
25400F-NM-12	12
25400F-NM-18	18
25400F-NM-25	25
25400F-NM-35	35
25400F-NM-50	50
25400F-NM-75	75
25400F-NM-100	100
25400F-NM-150	150

Suggested Applications

218XATC Series: Lightweight mobile, Dipole Antennas, as jumpers between equipment in tight places. Very Flexible.

2213A Series: Bands below 30MHz w/linear amplifiers. Solid Polyethylene Dielectic is robust and will stand up to HF high power over a long period of time (i.e. corona effect).

25400F Series: Great for frequencies 144MHz and higher. Double Shield=Shielding Effectiveness<90dB.

This is a guide only. Exceptions may apply.

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American Built & Reliable

AMPLIFIERS



HRO Discount Price $CALL

IC-PW1 w/ Solid State Remote Control Head

Icom's linear amp provides wide frequency coverage with up to 1kW output requiring only a 100-Watt maximum input. The duty cycle is 100 percent with full break-in operation. It covers amateur bands 160 to 15 meters plus 6 meters. Includes an automatic antenna tuner for all bands. Internal circuitry allows the ALC to be adjusted over a wide range so the PW1 can be used with almost any rig, not just Icom. Operates on 110 or 220 VAC 50 or 60 cycle.

Quadra System

$CALL – HRO Price



Use this linear amp to operate on HF (160–15 meters) and 6 meters. It has automatic band switching with the FT-1000D, FT-1000MP, FT-920, FT-990, FT-991, FTdx1200, FTdx3000, and the FTdx-5000 HF radios. The amp has 8 MRF150 power MOSFet transistors designed into 4 units of 2 transistors in a push-pull circuit at 48 VDC. The separate power supply, the VP-1000, allows easy installation. There are two input voltages, 117 VAC or 220 VAC. Output power is a function of the power supply voltages. At 220 VAC there is 1000 Watts out on HF and 500 Watts on 6 meters. At 117 VAC the output is reduced to 500 Watts on HF. The Quadra has a built-in high speed tuner to match the amp to your antennas. It has four antenna outputs and two inputs. The multifunction omni-glow LCD display shows the status of the amplifier. There is automatic system monitoring with VSWR protection.

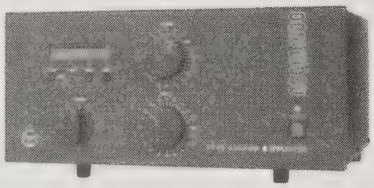
Amplifier Specifications

	Model	Frequency Range	Modes	Power In	Power Out	Voltage	Current	Pre-amp	Connector	Wgt	HRO Discount Price
Ameritron	AL-1500	160-15 M*	SSB. CW	65 W	1500+ W	220 VAC	15 A	–	SO-239	50 lbs#	CALL
	AL-1200	160-15 M*	SSB. CW	100 W	1500 W	220 VAC		–	SO-239	50 lbs#	CALL
	ALS-1300	160-15 M*	SSB. CW	90 W	1200 W	220 VAC	15 A	–	SO-239	22 lbs#	CALL
	ALS-1306	160-15 M*	SSB. CW	100 W	1200 W	110/220 VAC	25/12 A	–	SO-239	22 lbs $	CALL
	ALS-500M	160-15 M*	SSB. CW	100 W	500 W	13.8 VDC	80 A	–	SO-239	7 lbs	CALL
	ALS-600	160-15 M*	SSB. CW	100 W	600 W	110/220 VAC	16 A 110V	–	SO-239	13 lbs#	CALL
	AL-80B	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	15/10 A	–	SO-239	54 lbs	CALL
	AL-800	160-15 M*	SSB, CW	100 W	750 W	110 VAC	12 A	–	SO-239	67 lbs	CALL
	AL-800H	160-15 M*	SSB, CW	55 W	1500 W	240 VAC	9 A	–	SO-239	69 lbs	CALL
	AL-811	160-15 M*	SSB, CW	75 W	600 W	110/220 VAC	8/4 A	–	SO-239	40 lbs	CALL
	AL-811H	160-15 M*	SSB, CW	75 W	800W	110/220 VAC	8/4 A	–	SO-239	41 lbs	CALL
	AL-82	160-15 M*	SSB, CW	100 W	1500 W	220 VAC	15 A	–	SO-239	52 lbs#	CALL
Icom	IC-PW1	160-15 M*	SSB, CW	100 W	1000 W	110/220 VAC	20/15 A	–	SO-240	55 lbs	CALL
Mirage	A-1015G	50-54 MHz	All	10 W	150 W	13.8 VDC	23 A	yes	SO-239	5 lbs	CALL
	B-34	144-148 MHz	All	2 W	35 W	12-15 VDC	4 A		SO-239	2 lbs	CALL
	B-34G	144-148 MHz	All	2W	35 W	12-15 VDC	4 A	yes	SO-239	2 lbs	CALL
	BD-35	143-149/430-450	FM	7 W	45 W	12-15 VDC	7 A		SO-239	3 lbs	CALL
	B-310G	144-148 MHz	All	4 W	100 W	13.8 VDC	15 A	yes	SO-239	3 lbs	CALL
	B-1018G	144-148 MHz	All	10 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	CALL
	B-2518G	144-148 MHz	All	25 W	160 W	13.8 VDC	25 A	10 dB	SO-239	5 lbs	CALL
	B-5018G	144-148 MHz	All	50 W	160 W	13.8 VDC	24 A	yes	SO-239	5 lbs	CALL
	D-1010N	430-450 MHz	All	10 W	100 W	13.8 VDC	20 A	–	N type	5 lbs	CALL
	D-3010N	430-450 MHz	All	30 W	100 W	13.8 VDC	20 A	–	N type	5 lbs	CALL
	D-100-ATVN	429 MHz ATV	All	1 W	52 W	13.8 VDC	20 A	–	N type	6 lbs	CALL
	D-1010-ATVN	430 MHz ATV	All	10 W	100 W	13.8 VDC	20 A	–	N type	6 lbs	CALL
ACOM	A1000	160-10 M + 6M	SSB, CW	60 W	1000 W	200-240 VAC	2000VA	–	SO-239	48.5 lbs	CALL
	A1010	160-10 M	SSB, CW	50 W	500 W	100/240 VAC	1200VA	–	SO-239	39.7 lbs	CALL
	A1500	160-10 M + 6M	SSB, CW	60	1200 W	100/240 VAC	3500VA	–	SO-239	65 lbs	CALL
	A2000	160-10 M	SSB, CW	50	1500	100/240 VAC	3500VA	–	SO-239	96 lbs	CALL
Yaesu	Quadra System	160- 15 M* + 6 M	SSB, CW	100 W	1000 W	110/220 VAC	†	–	SO-239	21 lbs	CALL

*Owner modifiable for 10 m #Add 35 pounds. Transformer shipped in separate package. †VP-1000 power supply inc. ## Expect long production delays
$ Add 12 pounds. Transformer shipped in separate package.

HF POWER AMPLIFIERS

ACOM Amplifiers Shown Require No Antenna Tuner for VSWR of 3:1 or Less



ACOM 1000

The ACOM 1000 HF Linear is the world's best value in an amateur HF amplifier. It gives you a comfortable 1000 Watts output on all amateur bands from 160 through 6 meters.

- Frequency coverage: All amateur bands 1.8-54 MHz. MARS / CAP ready model.
- Power output: 1000W PEP or continuous-carrier, no mode limit.
- Intermodulation distortion: better than 35 dB below rated output.
- Hum and noise: Better than 40 dB below rated output.
- Harmonic output suppression: 1.8-29.7 MHz – better than 50 dB below rated output; 50-54 MHz – better than 66 dB below rated output.
- Input and output impedances:
  – nominal value: 50 Ohm unbalanced, UHF (SO239) type connectors;
  – input circuit: broadband, VSWR less than 1.3:1, 1.8-54 MHz continuously (no tunings, no switching);
  – bypass path VSWR less than 1.1:1, 1.8-54 MHz continuously;
  – output matching capability: better than VSWR 3:1 or greater at reduced output levels.
- RF gain: 12.5 dB typically, frequency response less than 1 dB (50 to 60 W drive power for rated output).
- Primary power: 170-264 V (200, 210, 220, 230 and 240 V nominal taps, 100, 110 & 120 V taps on request, +10%-15% tolerance), 50-60 Hz, single phase, 2000 VA consumption at rated output.
- Complies with CE safety and EMC requirements as well as FCC regulations (6,10 and 12 m bands lock provided).
- Size & weight (operating):
  – WxDxH: 422 x 355 x 182 mm, 22 kg.
  – (16.6 x 14 x 7.2 inches, 48.5 lbs.)
- Operating environments:
  – temperature range: 0...+50 degs. Celsius;
  – humidity: up to 75% @ +35 degs. Celsius.
  – height: up to 3000 m above sea level without output deterioration. **HRO Price $CALL**



ACOM 1010

- Frequency coverage: all amateur bands in the 1.8-29.7 MHz frequency range; extensions and / or changes on request.
- Power output: 700 W PEP or 500 W continuous carrier.
- Intermodulation distortion: better than 35 dB below rated output.
- Hum and noise: better than 40 dB below rated output.
- Harmonic output suppression: better than 50 dB below rated output.
- Input and output impedances:
  – nominal value: 50 Ohm unbalanced, UHF (SO239) type connectors;
  – input circuit: broadband, VSWR less than 1.3:1, 1.8-30 MHz continuously (no tunings, no switching);
  – bypass path VSWR less than 1.1:1, 1.8-30 MHz continuously, 200 W maximum;
  – output (antenna) impedance matching capability: VSWR up to 3:1 or higher.
- 50 to 70 W drive power for rated output.
- Primary power: 85-132 V / 170-264 VAC (100, 110, 120, 200, 210, 220, 230 and 240 V nominal taps), +10% -15% tolerance), 50-60 Hz, single phase, 1200 VA.
- Size and weight (operating): W x D x H: 406 x 315 x 150 mm, 18 kg. (16 x 12.4 x 5.9 inches, 39.7 lbs.)
- Antenna matching can be achieved in less than 10 seconds and at a quarter of nominal output power, which produces lower risk of interference to other stations and greater safety to the amplifier components. **HRO Price $CALL**

ACOM 2000SW Remote Antenna Switch



The 2000SW is a rugged, high-performance coaxial antenna switch. It is a single-pole, 10-position coaxial design, to select quickly from multiple antennas or other RF loads. The switch can handle up to 5 kW, and operate at VSWR as high as 3:1 (at reduced power). Advanced mechanical design shields the 2000SW internal circuitry and high-speed relays from the elements. Fully protected against a variety of adverse conditions including antenna mismatch, hot-switching and lightning, it is the ideal solution for safe remote switching of multiple antennas. **HRO Price $CALL**

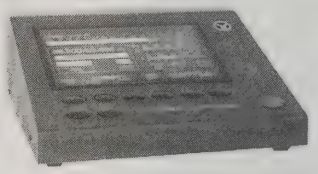


ACOM 1500

- Frequency coverage: all amateur bands 1.8-54 MHz; extensions and / or changes on request.
- Power output: 1500 W PEP or 1200 W continuous carrier, no mode limit.
- Intermodulation distortion: better than 35 dB below rated output.
- Input and output impedances:
  – nominal value: 50 Ohm unbalanced, UHF (SO239) type connectors;
  – bypass path VSWR less than 1.1:1, 1.8-54 MHz continuously;
  – output matching capability: better than VSWR 3:1 or greater at reduced output levels.
- 60-85 W drive power for rated output.
- Primary power: 85-132 V and 170-264 V (100, 110, 120, 200, 210, 220, 230 & 240 V nominal taps, +10%-15% tolerance), 50-60 Hz, single phase, 3500 VA consumption at rated output. **HRO Price $CALL**



ACOM 2000



remote control unit

- RF output: 1500-2000 W keyed carrier or SSB – no time limit. Constant carrier modes 1500 W RF output – no time limit with auxiliary cooling fan.
- Frequency coverage: All amateur bands 1.8-24.5 MHz. 28 Mhz only with modification.
- Band change / tune up: initial output matching process in less than 3 seconds.
- Tuning memories: Non-volatile for up to 10 antennas per frequency segment.
- Drive power: typically 50 W for 1500 W out.
- Input impedance: 50 ohms nominal. VSWR <1.5:1.
- Output tolerance: up to 3:1 VSWR (2:1 on 160 m) at full rated output.
- T / R and keying: vacuum relay: QSK capable.
- Tubes and circuit: 4CX800A/GU74b tetrodes (2); resistive grid, PI-L output with RF negative feedback.
- ALC: negative going, grid derived, -11 v maximum.
- Metering: comprehensive. Remote control unit provides flexible monitoring of all amplifier parameters. PC interface (RS-232) plus remote phone line interrogation feature.
- No controls on RF unit except ON / OFF. RF unit may be located up to 3 meters (20 m with optional cable) from RCU.

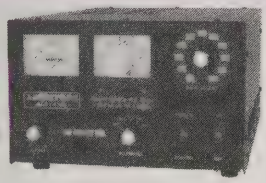
HRO Price $CALL

AMPLIFIERS

AMERITRON

For more Ameritron Amps, visit hamradio.com

NEW!

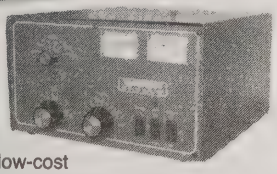


ALS-1306

HF+ 6, 1200 W Solid State Amplifier

Covers 1.5-54 MHz with1200 Watts PEP Output. Features Instant Automatic bandswitching, no tuning and no warm-up. It is SWR protected with Quiet Variable-Speed Cooling. Metering includes PEP FWD/REF, PA Balance and ALC with a LED Indicator. There are Front Panel Band / Error LEDs.





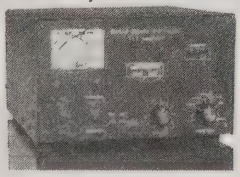
AL-811H

800 Watt PEP output. This low-cost desktop linear HF amplifier gives plenty of power to burst through QRM. This will plug right into a 120 VAC outlet. Four tough 811A transmitting tubes, heavy-duty power supply, all HF band coverage, operate / stand-by switch, transmit LED, plus more! UPS shippable. The **AL-811** is similar but has three 811A tubes, 600 Watts PEP output.



AL-80B

1 kW PEP output from a compact, desktop linear that plugs into 120 VAC outlet. Classic 3-500G tube, inrush current protection, two year limited warranty.



ALS-600

No tuning, no fuss, no worries – just turn on and operate. 600 Watts PEP / 500 W CW, 1.5-22 MHz, instant bandswitching, SWR protected. 120 / 220 VAC. 9-1/2 W x 6 H x 12 D inches. Includes matching transformer power supply.

ALS-600S ALS-600 with 10 pound switching power supply.

ANALYZERS

Antenna Analyzers

COMET

NEW!



CAA500 MarkII

1.8-500 MHz
Antenna Analyzer

Commercial Grade SWR / Impedance Analyzer Range: 1.8 - 500 MHz (including 222 MHz band). Check antenna installations in just seconds. Determine SWR and resonance instantly. New color TFT display permits easy viewing of frequency and band information, even in the dark. Also has a Band Sweep function that allows you to measure SWR across the selected ham band and view it on the display graph.

Makes SWR adjustments quick and easy. Both SWR and impedance measurements are provided simultaneously. Precision analog meter provides SWR / impedance changes in real time. **HRO Price $439.95**

MFJ

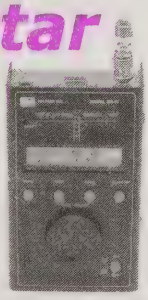
NEW!



MFJ-226
Antenna Expert

MFJ VNA Antenna Analyzer covers 1 to 230 MHz with1Hz resolution. Frequency sweep plots: SWR, Impedance, Resistance, Reactance, Phase Angle, Complex Return Loss and Smith Chart. Shows Sign of reactance. Features amazing accuracy with OSL (Open-Short-Load) calibration.

Palstar

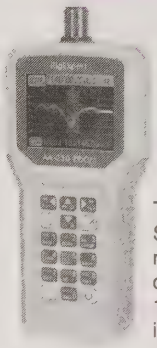


Antenna Analyzer
ZM30

The ZM30 is an automated micro-controlled SWR antenna analyzer with an 8 bit micro-controller with a precision low power DDS signal generator. It includes a self-calibrating reflectometer. The digital display shows SWR at selectable frequencies from 1 to 30 Mhz. It measures: SWR, impedance, reactance, inductors and capacitors, transmission lines, stubs, Q, and resonant frequency. There is a serial port for field upgradable software. Battery operated.

RigExpert

See the entire line of RigExpert analyzers on the web at hamradio.com



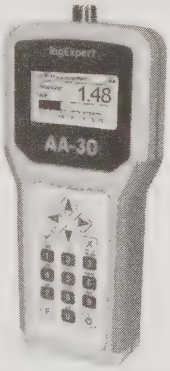
NEW!

AA-230 ZOOM

100 kHz to 230 MHz
HRO Price $CALL

This analyzer measures SWR (standing wave ratio), return loss, and cable loss of cable / antenna systems from 100 kHz to 230 MHz. Built-in ZOOM capability makes graphical measurements especially effective.Use the integrated time domain reflectometer mode to locate the precise location of a fault within the feedline system.

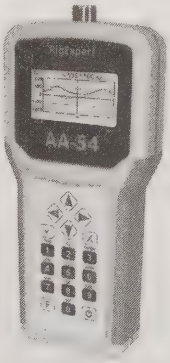
Use this analyzer to: Rapidly check-out an antenna; tune an antenna to resonance; compare characteristics of an antenna before and after a specific event (rain, hurricane, etc.); make coaxial stubs or measure their parameters; test cable for fault location, signal loss, and impedance; measure capacitance or inductance of reactive loads.



AA-30

HRO Price $CALL

RigExpert makes antenna analyzers designed for testing, checking, tuning or repairing antennas and antenna feedlines in various frequency ranges. Mainly, these are SWR (Standing Wave Ratio) and impedance measurement instruments (vector impedance analyzers). Easy-to use measurement modes, as well as additional features such as memory storage and connection to a personal computer on some, make RigExpert analyzers attractive for professionals and hobbyists. The graphical display of various parameters over a wide frequency range is a key feature of these analyzers, which significantly reduces the time required to adjust an antenna.



AA-54

HRO Price – $CALL

seeed

RF Explorer Spectrum Analyzer



NEW!

RF Explorer handheld digital spectrum analyzer is an affordable tool for work in all popular frequency bands. Its highly integrated frequency synthesizer and double balanced mixer offer high performance, compact size, low consumption and low cost. Connect to a PC for extra functionality using standard mini-USB 2.0 connector.

Two models - 3G COMBO & 6G COMBO

Both models DO NOT include an RF Signal Generator. A separate generator is available below. Additional, specific band antennas may be needed to efficiently cover some of the frequencies supported.

The **3G COMBO** covers 15-2700 MHz. It includes a WSUB1G baseline unit plus an RFEMWSUB3G Expansion Module. It comes with two SMA connectors and two antennas, a Nagoya NA-773 wideband telescopic antenna for all Sub-GHz frequencies and a helical whip for 2.4 GHz band. **HRO Price $268.95**

The **6G COMBO** covers 15-2700 MHz and 4850-6100 MHZ. It includes a 6G baseline unit plus an RFEMWSUB3G Expansion Module. It comes with two SMA connectors and three antennas: Nagoya NA773 wideband telescopic antenna for all Sub-GHz frequencies, a rubber duck for 5.8 GHz, and a helical whip for the 2.4 GHz band. **HRO Price 364.95**

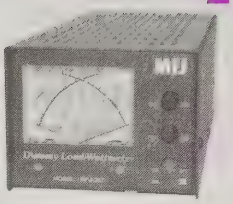


NEW!

RF Explorer Signal Generator

This powerful, wideband fully programmable RF signal generator is the perfect companion for the RF Explorer Spectrum Analyzers. Generate CW and sweep signals by selecting embedded menu options. When connected to a PC, it can be fully programmed with RF Explorer for Windows software. The unit also works as a powerful tracking generator when used with the RF Explorer spectrum analyzer connected to the same PC, offering full Scalar Network Analyzer (SNA) capabilities and allowing full characterization of filters, amps, and any 2-port RF device. **HRO Price $188.95**

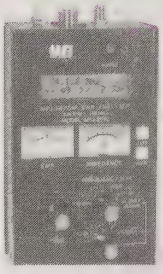
MFJ



MFJ-267
with Dummy Load

Dry Dummy Load / SWR / Wattmeter combination. Three-inch cross-needle SWR meter, 1500 Watt dry load. 1.8 to 30 MHz. Perforated metal.

SWR Analyzers



MFJ-259C

SWR Analyzer™ with impedance meter reads antenna SWR, complex RF impedance, resistance (R)and reactance (X) or magnitude (Z) and phase (degrees), coax cable loss in dB, coax cable length and distance to fault, return loss, reflection coefficient, inductance and capacitance. Tells battery voltage. Has huge LCD digital readout with built-in frequency counter, side-by-side SWR and RF impedance meters, Ni-Cd / Ni-MH internal battery charger, battery saver feature, low battery warning, and easy-access batteries. Has smooth, reduction drive tuning. Truly portable. Uses 10 alkaline, Ni-Cd or Ni-MH batteries (not included) or 110 VAC with optional MFJ-1312D.



MFJ-269C

Covers 530 kHz to 230 MHz plus 415 to 470 MHz HF / VHF / UHF. Has all of the features of the MFJ-259B plus a 12-bit A/D converter (gives much better accuracy and resolution), CoaxCalculator™ (calculates coax line length in feet given coax length in electrical degrees and vice versa) and coaxial characteristic impedance input (zero to six hundred ohms).

Digital Wattmeters



MFJ-826B

MFJ's high accuracy digital SWR / Wattmeter / frequency counter measures to 1.5 kW at 1.8-54 MHz. True peak or average forward and reflected Watts, SWR and frequency can be simultaneously displayed. You get three high-resolution forward / reflected power ranges that are automatically selected: a true QRP range (25 Watt full scale), a mid-range (250 Watts full scale) and a high-range (1500 Watts full scale). Each range has excellent resolution. Use 12 VDC or 110 VAC with optional MFJ-1312D, $15.95. Attractive cabinet measures 6-1/2 W x 2-5/8 H x 6 D inches.



MFJ-828

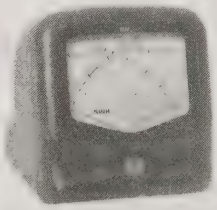
ALL features of the MFJ-826B, PLUS . . . large, lighted cross-needle SWR / Wattmeter and Amplifier Bypass Control™ to protect amp during high SWR.

MFJ-845 / MFJ-847

This digital SWR / Wattmeter displays forward, reflected power, SWR, and battery life. Digits are 1/2" forward power, 5/8" reflected / SWR. Backlit LCD with power and backlight switches. Use AAA batteries or micro USB port. SO-239 Connectors. 4 W x 3 H x 1 D inches.
MFJ-845 covers 1.6-60 MHz / 0-200 Watts.
MFJ-847 covers 125-525 MHz / 0-120 Watts.

SWR / Wattmeters

Cross-needle SWR / Wattmeters for HF / VHF and VHF / UHF read forward / reflected power and SWR simultaneously on the huge 3" meter. Perfect for mobile or portable operation. Two selectable power ranges, built-in meter light (+12 VDC). SO-239 connectors. 3-1/4 W x 3-1/4 H x 3-1/4 D inches.



MFJ-822

Covers 1.8-200 MHz, 30 or 300 Watts.

MFJ-842

Covers 140-525 MHz, 15 or 150 Watts.

MFJ-862

Covers 144 / 220 / 440 MHz. 30 / 300 Watts forward, 6 / 60 Watts reflected ranges. 5.64 W x 2.5 H x 2.25 D inches. Has one sensor for all three bands.

MFJ-868

Giant SWR / Wattmeter measures 6.5 inches diagonally across face. Covers 1.8 to 30 MHz.

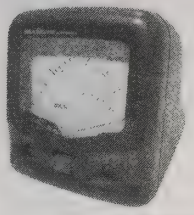
MFJ-867

Giant VHF / UHF SWR / Wattmeter. Same size as MFJ-868.

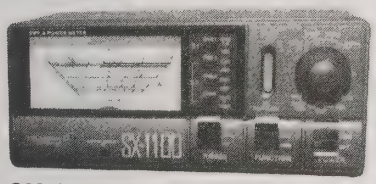
DIAMOND

SWR / Watt Meters

Diamond RF SWR / Watt meters cover the full range of amateur applications. The SX-20C and SX-40C are the newest models. The SX-40C can be used on 220 MHz with a correction factor.

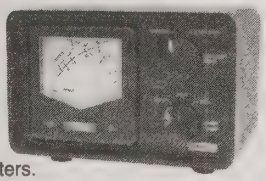


SX-40C



SX-1100

SX-240



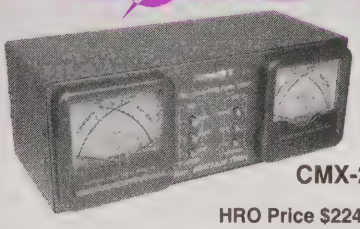
All models:

- Illuminated meters.
- Require 12 volts DC.
- Low insertion loss generally less than 0.2 dB in HF range and 0.3 dB at higher frequencies.
- Power measurement accuracy generally ±10% on higher power ranges and ±5% on the lower.
- Low loss SO-239 connectors are used except for the high frequencies as noted in the table.
- Measurements are forward power, reflected power, SWR and, on selected frequencies, PEP monitor.

Diamond Meters

Model	Freq MHZ	Power Ranges	Connector	HRO Price
SX-20C	3.5-30 50-54 130-150	30/ 300 W	SO-239	$89.95
SX-40C	144-470	30/ 300 W	SO-239	$79.95
SX-100	1.6-60	30/ 300/ 3KW	SO-239	$124.95
SX-200	1.8-200	5/ 20/ 200 W	SO-239	$89.95
SX-240	3.5-30 50-54 130-150 430-450	30/ 300/ 3KW	30/ 300/ 3KW	$299.95
SX-400	140-525	5/ 20/ 200 W	SO-239	$109.95
SX-600	1.8-160 140-525	5/ 20/ 200 W	SO-239	$179.95
SX-1100	1.8-160 430-450 800-930 1230-1300	5/ 20/ 200 W	SO-239 Type N Type N Type N	$199.95

COMET



CMX-2300

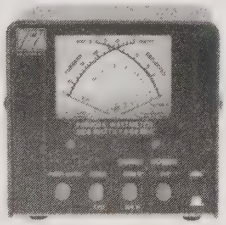
HRO Price $224.95

Twin cross-needle meters in a single case. Forward power, reflected power, and SWR are displayed simultaneously. Each meter has a 30 db (nominal) attenuated BNC jack to monitor wave form and frequency. Both meters can operate at the same time. 12V DC jack to light the meters. SO-239 connectors.

Meter 1	**1.8-200 MHz**	
	Max power:	3 kW (HF), 1 kW (VHF)
	Power ranges:	30 / 300 / 3 kW
Meter 2	**140-525 MHz**	
	Max power:	200 Watts
	Power ranges:	20 / 50 / 200 Watts
	Impedance:	50 Ohm
	VSWR:	1.2:1 or less
	Insertion loss:	0.2 dB or less

Palstar

PM2000A Wattmeter



The PM2000A measures and displays forward power (up to 2000 W), reflected power, and SWR simultaneously on its dual movement meter system in the frequency range of 1.8 MHz to 60 MHz. Accuracy of the readings is assured because the PM2000A features a true shielded directional coupler. The backlit meter can display either peak or average power readings with a Peak Hold function, and has 300 and 2000 Watt range settings.
PM-2000A HRO Price $189.95

The **PM2000AM** mobile version has a remote coupler that can be mounted up to 14' from the display head.

- PL259 coax connector.
- 115 VAC to 12 VDC adapter included.
- Size: 4.5" x 3.25" x 3.25" deep.
- Weight 1.2 lbs. / 0.55 Kg.

Visit HRO's Secure Website @ www.hamradio.com

Or Call Toll Free for Quotes

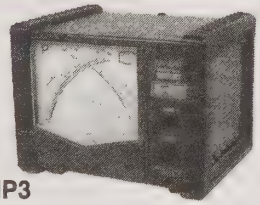
DAIWA

CN-101

- Cross needle design reads forward, reverse and VSWR simultaneously, no calibration required.
- Easy to read meter.
- PEP monitor function.
- Illuminated meter, 12 VDC plug provided.



	CN-101
Frequency	1.8 - 150 MHz
Power Range	15 /150 / 1.5 kW
Power Rating	1.5 kW (1.8-60 MHz) 1 kW (144 MHz)
SWR Detection	4 W minimum
HRO Price	$99.95



CN-801HP3 Professional Series

HRO Price $189.95

- Easy to read, illuminated, extra large meter face with mirrored graph in .5 watt increments.
- Cross needle design reads forward, reverse and VSWR simultaneously, no calibration required.
- CN-801HP3 is the new 3000 Watt version.
- 12 VDC plug provided.

Daiwa 801 Meters

	CN-801 HP3	CN-801 V	CN-801 S-II
Frequency	1.8-200 MHz	140-525 MHz	900- 2500 MHz
Power Range FWD	20 / 200 / 2 kW	20 / 200 W	2 / 20 W
Impedance	50Ω	50Ω	50Ω
Connectors	SO-239	SO-239	N-Type
SWR Detection	5 W minimum	5 W minimum	0.5 W minimum
HRO Prices	$189.95	$149.95	$239.95

ASTRON CORPORATION

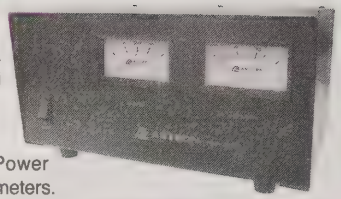
POWER SUPPLIES

All of Astron's solid-state electronically regulated Power Supplies have fold-back current limiting to protect from excessive current, and a heavy duty heat sink. Output voltage: 13.8 VDC ±.05 volts. 220 V supplies available on special order at slightly higher price.

RS-A Series Standard power supply with on / off switch. Adjust voltage internally.

SL Series Slim Line design for low-profile looks.

MODEL RS-35M



RS-M Series Power supplies with front meters. One is for voltage and the other current.

SS Series High efficiency switching supplies specially filtered for use with communications equipment for all frequencies including HF. Heavy duty design, low profile, light weight and EMI filter.

VS-M Series Variable power supplies with separate volt and amp meters. Adjustable output: 2-15 volts.

RM Series 19" x 5 1/4" rack-mount power supplies available with or without meters and may be variable. The RM-60 comes with or without meters.

Power Supplies

Brand	Model	Cont.Duty 13.8 VDC	Intermit Duty	Height in	Width in	Depth in	Weight lbs
Alinco	DM-330MVT	30 A	32 A	2.75	7	7	5
	DM-330FXT	25 A	30 A	2.71	7.48	7.12	5.5
Astron	RS-4A	3 A	4 A	3.75	6.5	9	5
	RS-7A	5 A	7 A	3.75	6.5	9	9
	RS-10A	7.5 A	10 A	4	7.5	10.75	11
	RS-12A	9 A	12 A	4.5	8	9	13
	RS-20A	16 A	20 A	5	9	10.5	18
	RS-35A	25 A	35 A	5	11	11	27
	RS-50A	37 A	50 A	6	13.75	11	46
	RS-70A	57 A	70 A	6	13.75	13.75	48
	RS-12M	9 A	12 A	4.5	8	9	13
	RS-20M	16 A	20 A	5	9	10.5	18
	RS-35M	25 A	35 A	5	11	11	27
	RS-50M	37 A	50 A	6	13.75	11	46
	RS-70M	57 A	70 A	6	13.75	12.12	48
	RM-50A	37 A	50 A	5.25	19	12.5	50
	RM-60A	50 A	55 A	7	19	12.5	63
	RM-35M	25 A	35 A	5.25	19	12.5	38
	RM-50M	37 A	50 A	5.25	19	12.5	50
	RM-60M	50 A	55 A	7	19	12.5	63
	VS-20M	16 A	20 A	5	9	10.5	20
	VS-35M	25 A	35 A	5	11	11	29
	VS-50M	37 A	50 A	6	13.75	11	46
	SL-11A	7 A	11 A	2.75	7.62	9.95	11
	SL-15R	12 A	15 A	2.75	7.62	9.95	14
	SS-10	7 A	10 A	1.125	6	9	3.2
	SS-12	10 A	12 A	1.375	6	9	3.4
	SS-18	15 A	18 A	1.375	6	9	3.6
	SS-25	20 A	25 A	2.875	7	9.375	4.2
	SS-30	25 A	30 A	3.75	7	9.625	5
Diamond	GZV4000	40 A	42 A	4.5	8.25	13	8
	GZV6000	60 A		4.5	8.25	13	8
Daiwa	SS-330W	30 A	33 A	4	5	11	4.8
	SS-505	50 A	55 A	4.3	8.5	11	8.25
Icom	PS-126	26 A	26A	3.7	4.4	11.3	6.6
Kenwood	KPS-15	23 A	24 A	2.2	7	8.25	4
	PS-60	22.5 A	22.5 A	3.75	6.83	8.9	5.5
Power Werx	SS-30DV	25 A	30 A	2.5	5	6.1	3
	SPS-30DM	25 A	28 A	2.5	5	6.1	3.7
Samlex	SEC1212	10 A	12A	2.2	7	8.25	3
	SEC1223	23 A	24 A	2.2	7	8.25	4
	SEC1235M	30 A	35 A	2.4	7.28	8.19	4.5
Yaesu	FP-1023	23 A	24 A	2.2	7	8.25	4
	FP-1030A	25 A	30 A	9.8	5.9	9.5	20.9

* Internal Supply
(220 volt versions of some models available at additional cost by special order. Contact HRO for details.)

Switching Supplies

DAIWA

Daiwa switching power supplies are one-third the weight and one-half the size of conventional supplies. Daiwa models can be used for DC motors that require peak starting currents and will accept input voltage from 90-130V. Switching supplies can create pulse noise, but Daiwa engineers have isolated any noise and moved it out of the amateur bands creating a super quiet power supply.

Both models below have adjustable voltage 5-15 V., a built-in automatic cooling fan, a carry handle for portability, and are short-circuit protected.



SS-330W 30 amp

- Dual meters, amp and voltage.
- Ripple voltage: less than 10 mV.
- 30 amps continuous current (33 peak).
- Weight: ONLY 4 lbs 14 ozs.
- Dimensions: 5" x 4" x 11" (approx).

HRO Price $169.95

SS-505 50 amp

- 50 amps continuous current (55 peak).
- 50 amps available at all output voltages.
- Binding posts on back, cigarette-lighter socket, spring loaded connectors on front.
- Voltage fluctuation: less than 1.5%.
- Dual purpose meter – amp and voltage.
- Weight: ONLY 8 lbs 4 ozs.
- Dimensions: 8.5" x 4.3" x 11" (approx).
- Ripple voltage: less than 5 mV.

HRO Price $389.95

ALINCO



DM-330FXT

Communications Grade

Compact, lightweight design features 9-15VDC variable output up to 25 amps with 30 amp peak. The noise Offset Circuit lets you move any switching noise to another frequency. Features large illuminated Volt/Amp meter, rear panel (30A peak) binding posts, front panel cigar outlet (10A), two pairs of snap-in terminals (5A max), and USB ports (2A max). Front panel adjustable.

HRO Price $Call

DM-330MVT



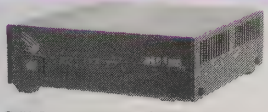
Super compact, lightweight power supply is great for portable operations. Provides 32 A peak, 30A continuous. Variable output 5-15 VDC. Preset voltage function. Patent pending noise offset circuit removes pulse noise. Short circuit protection. Convenient front panel connections. Cigarette plug socket. **HRO Price $Call**

samlexamerica

Samlex is THE power supply choice for radio manufacturers around the world. On the market for more than 20 years, these compact switching power supplies offer reliable power at a price consumers can afford.

ALL SAMLEX POWER SUPPLIES CARRY A 3-YEAR WARRANTY

For Base Stations



SEC-1223 & SEC-1212

The perfect lightweight companion for 100 Watt tranceivers. Input 100-130 VAC; Output: 13.8 VDC @ 23 Amps; UL approved. Also works on 200-240 VAC input with a simple jumper change. Safety features: Current limiting; Short circuit protection; Overvoltage protection; Quiet temperature controlled cooling fan. The SEC-1212 has the same form factor as the SEC-1223 with output of 13.8VDC @ 12 amps.

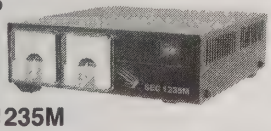
• 3 year warranty - "no questions asked."
• Dim 7"w x 2.1"h x 7.1"d; 4.5 lbs.

HRO Price SEC-1223 $114.95
HRO Price SEC-1212 $94.95



SEC-1223BBM

Samlex has combined the reliability of the SEC-1223 power supply with the reassurance of the BBM-1225 battery backup module. The SEC-1223 23-amp unit automatically provides uninterrupted DC power from an external backup battery to your critical load in the event of an AC power outage. Once AC power is restored, the SEC-1223BBM will continue to seamlessly supply DC power to the load while providing a current-limited charge to the backup battery. Input: 100 – 130 VAC.Output: 13.8 VDC. **HRO Price $144.95**



SEC-1235M

This unit includes built-in volt and amp meters. 100-130 VAC, 13.8 VDC.

- Best power supply value available.
- Advanced switch-mode technology.
- Reliable power at minimum weight & size.
- Circuit innovations minimize output voltage ripple and RFI.
- Input voltage can be set at 120 VAC or 240 VAC (internal jumper setting).
- Front panel ammeter and voltmeter.
- Detachable power supply cord.
- UL listed to both USA & Canadian safety standards; FCC compliant **HRO Price $129.95**

Battery Backup

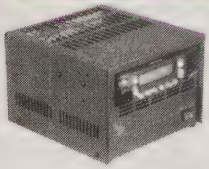
BBM-1225 25 Amp
BBM-12100 100 Amp



- Uninterrupted DC power in association with a power supply and battery.
- Instantaneous transfer of load between power supply and battery.
- Pre-set for 12 V power supply.
- Minor modifications for 24 V power supply.
- Use with any Samlex or other 12 V or 24 V DC power supply.

HRO Price BBM-1225 $49.95
HRO Price BBM-12100 $129.95

Radio Cabinets



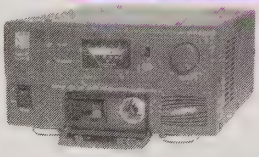
NEW!

(SEC1212 shown. Radio and power supply NOT included.)

Base Station Radio Cabinets

Integrate your mobile radio with any Samlex desktop switching power supply to create an attractive and functional desktop base station unit. Cabinets are specifically designed for use with specific mobile radio models. **HRO Price $42.95**
Samlex 12250 for Kenwood TM-281A.
Samlex 12200 for Icom ID-880H-05, IC-2820H

DIAMOND



Switching Mode DC Power Supply GZV4000

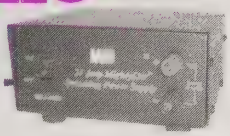
The GZV4000 switching mode DC power supply has a 40 amp continuous rating at 100% duty cycle. The supply has variable voltage from 5-15 VDC using a voltage control knob with a center detent at 13.5 VDC. There is overload and short circuit protection with current feedback at approximately 42 amps and temperature protection with a variable speed fan. An AC line filter provides EMI protection. The meter selector allows monitoring of voltage and current. Power and overload indicators are included. Front panel DC terminals, a cigarette lighter jack, and an internal 8 ohm speaker. Operates on 120 VAC ± 20%, 50-60 Hz. Ripple and noise is less than 8mV rms. 240 VAC models also available for GZV4000.
HRO Price: $169.95

GZV6000

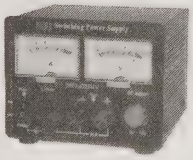
60 amp version. 100V-240V **HRO Price: $369.95**

MFJ

MightyLite™ MFJ-4125



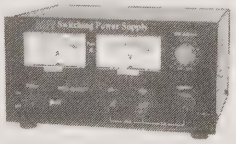
Switching Power Supply. 25 amps surge, 22 amps continuous. No RF hash! Low ripple, highly regulated. Great review by QST magazine. Over-voltage and over-current protection circuits. Switchable AC input voltage, works from 85 to 135 VAC or 170 to 260 VAC. Replaceable fuse. Tiny 5.5 W x 2.5 H x 5.75 D inches. Weighs just 3.5 lbs.



MFJ-4225MV

Similar to MFJ-4125, but adds large 3-inch amp, volt meters and cigarette lighter plug. 5.25 W x 4.5 H x6 D inches. Weighs 3.7 pounds.

MFJ-4245MV

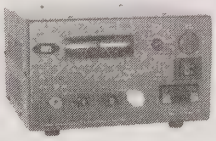


Similar to MFJ-4225 MV but handles 45 amps surge and 40 amps continuous. 7.5 W x 4.75 H x 9 D inches. Weighs just 5.5 pounds.

MFJ-4230MV

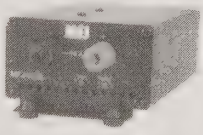


30 amp switching power supply with switchable amp / volt meter. Super compact 5 W x 2-1/2 H x 6 D inches. 120 / 240 VAC switchable. Gives 25 amps continuous or 30 amps surge at 13.8 VDC. Front panel voltage adjustable 4 to 16 VDC.
MFJ-4230MVP is similar to MFJ-4230MV but adds a pair of PowerPoles™ on back.



MFJ-4275MV

75 amp switching power supply is great for powering your Ameritron ALS-500M amplifier. 75 A maximum and 70 A continuous. 110 / 220 VAC switchable. Highly regulated with load regulation better than 1%. Ripple voltage is less than 12 mV peak-to-peak at rated load. No RF hash. Short-circuit, overload, and over-temperature protection systems. Front panel adjustable voltage 4-16 VDC. Battery charging feature provides charging current of 20 A continuous, 30 mA trickle charge. 9-3/4 W x 5-1/2 H x 9-1/2 D inches.



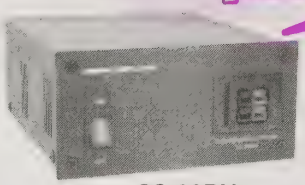
MFJ-4115

Ultra-compact 15 amp switching power supply weighs just 1-1/2 pounds and is 3-3/4 W x 2-1/4 H x 7-3/4 D inches. Has overvoltage and over current protection. 17 A surge, 15 A continuous.

POWER SUPPLIES

BATTERIES

powerwerx.com



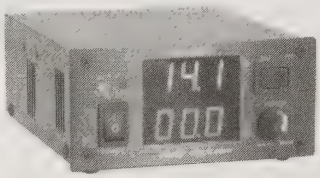
SS-30DV

Compact Switching Supply
30 Amp w/ Powerpoles®

Compact regulated switching power supply features 2 Powerpole® outputs in front and 1/4" binding posts in rear. Machined metal front bezel with illuminated power switch. DC output voltage 14.1V at 25A continuous, 30A surge.

- Input range: 100-120 or 200-240 VAC, 50 / 60 Hz (switchable).
- Output voltage: 14.1 VDC fixed.
- Output amperage: 25 continuous, 30 surge.
- Internal protection: thermal, over current.
- Ripple peak-to-peak max. <100mVpp.
- Noise peak-to-peak max. <100mVpp.
- Operating temperature rating: 0 – 50 °C.
- Storage temperature: -20 – 85 °C.
- Weight: 3.0 lbs. (48 oz.).
- Overall dimensions: 6.1x 5x2.5 in
- Quiet internal cooling fan
- Warranty: 3 Year

HRO Price $109.95



SPS-30DM

Variable Digital Desk Top 28A Power Supply

Dual-metered digital power supply SPS-30DM will supply 25 amps continuous and 28 amps surge. Dual metered digital (amps/voltsy). User selectable variable output voltage from 5~16 VDC by adjusting the front mounted knob or fixed output at 14.1 VDC. Rear connection: 1/4 inch binding posts that also accept banana plugs or compression connections.

Electrical specifications same as SS-30DV except as noted:

- Output Voltage: variable 5~16 VDC.
- Output Amperage: 25 continuous, 28 surge.
- Meter Tolerance: ±3%
- Weight: 3.7 lbs. (59 oz.).
- Overall dimensions: 6.1 x 5 x 2.5 in.
- Quiet internal cooling fan.
- Warranty: 3 years.
- Machined metal front bezel.

HRO Price $159.95

Rack Mount Supplies



SS-30RM1



SS-30RM2

NEW! Powerwerx offers rack mount versions of the popular SS-30DV regulated power supply. Single and Dual 30A power supplies are available. A redundant rack mount model is also available. Machined metal panel for 19" racks, 2U height size. Powerpole® outputs in front and 1/4" binding posts in rear. DC output voltage 14.1V @ 25A continuous, 30A surge.



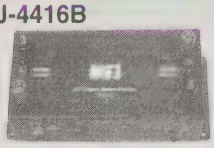
RSPS-30

Model	Description	HRO Price
SS-30RM1		**$164.95**
	Rack Mounted Power Supply - Single	
SS-30RM2		**$264.95**
	Rack Mount Power Supplies - Dual	
RSPS-30		**$409.95**
	Rack Mount Redundant Power Supply	

MFJ

Super Battery Booster

MFJ-4416B

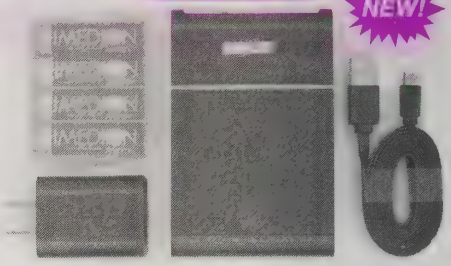


Keep your transceiver operating at full efficiency and performance by eliminating low or marginal voltages in the mobile environment. Today's compact 100-Watt HF rigs are designed to operate from about 12-16 Volts with output signal distortion, output power problems and transceiver reset often occurring when voltage drops below 12 Volts. MFJ-4416B includes Anderson PowerPole™ connectors and high-current 5-way binding posts for both the DC input and regulated output. An internal 30-Amp input fuse protects the unit from excess output current demands. Just 7-3/4 W x 4 H x 2-1/8 D inches; 1.3 pounds.

NiMH Batteries and Charger

MAHA

NEW!



MH-C204U

4-Cell Charger

Charges up to 4 AA or AAA nickel-metal hydride (NiMH) rechargeable batteries. You can charge 2 or 4 batteries in about 4 hours. Includes 4AA 2400mAh Batteries. **HRO Price $29.95**

NiMH Rechargeable Battery Cells

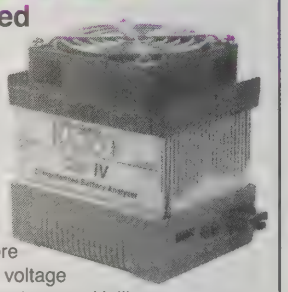
Model	Volts (Vdc)	Capacity (Mah)	Cell Description	HRO Price
MH-RAA-4	1.2	2700	4 pack "AA" size NiMH	$16.95
MH-RAA-I4	1.2	2400	4 pack "AA IMEDION NiMH"	$16.95
MH-RAAA-I4	1.2	950	4 pack "AA IMEDION NiMH"	$9.95

Battery Analyzer

West Mountain RADIO

Computerized Battery Analyzer

CBA IV



The CBA is much more than a simple battery voltage tester or a battery load tester. Unlike a simple load tester the CBA will test virtually any type or size of battery, any chemistry, any number of cells up to 55 volts. For the first time and for a reasonable price, anyone can do scientific tests of their batteries by letting their computer do all the work. The CBA is capable of higher test rates than other testers: up to 40 amps or 150 Watts, whichever is higher. It not only tests the total amount of energy stored in a battery (capacity in amp-hrs), but it graphically displays and charts voltage versus amphours. #58250-1014 **HRO Price $149.95**

POWER CABLE ACCESSORIES

powerwerx.com

Panel Mount Products



NEW!

PanelDVM

Panel mount digital volt meter. Fits standard 1 3/16" hole, 9-30VDC. Available in red or blue. **HRO Price $19.95**

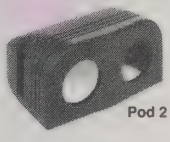
PanelUSB-Plus

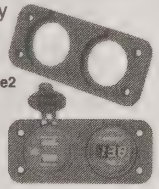


Panel mount Dual USB 4.2 amp device charger, fits standard 1 3/16" hole. 9-32 VDC input. **HRO Price $23.95**

Panel Pod & Mounting Plates

Designed to hold socket type connector for easy mounting for a variety of applications.





Model	Description	HRO Price
PanelPod1	1 Panel Mount	$4.95
PanelPod2	2 Panel Mount	$6.95
PanelPlate2	2 Plate Mount	$4.95
PanelPlate3	3 Plate Mount	$5.95

Accessories

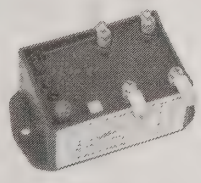


Resettable Circuit Breakers

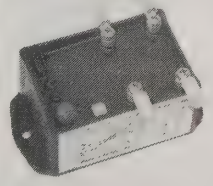
High amperage breakers great for adding additional auxiliary circuit for radios.

Model	Description	HRO Price
CB285-30	30A Circuit Breaker	$29.95
CB285-50	50A Circuit Breaker	$29.95
CB285-70	70A Circuit Breaker	$29.95

APS-12 DC Auto OFF Timer



Has Powerpole® connectors. 10 Timer settings (2 min-12 hours). **HRO Price $64.95**



ITS-12 DC Auto Timer & Low Voltage Disconnect

DC Automatic Timer & Low Voltage Disconnect. 10 User settings (2 min-12 hours).**HRO Price $79.95**

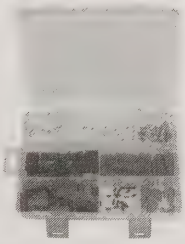
Powerpole® Products



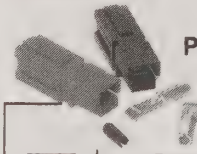
Powerpole® Bag

Powerpole® Bag includes the best Powerpole® Crimping tool for 15 / 30 / 45 amp contacts with 150 piece assorted 15 / 30 / 45 Powerpoles® in a handy clear organizer case, packaged inside an oversized nylon bag to hold all of your Powerpole® gear. **HRO Price $99.95**

Powerpole® Case



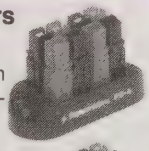
150 piece assorted kit includes the popular 15 / 30 / 45 A Powerpole® series housings and contacts in a handy organizer case. Includes red & black unassembled & permanently bonded housings, contacts for gauges 10 to 20, Powerpole® retaining clips and roll pins. **HRO Price $49.95**



Powerpole® Kits

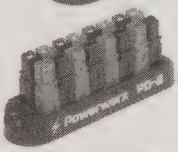
Model	Description	HRO Price Per Bag
PP- 15-10	Powerpole® 15A 10 pack	$9.95
PP- 15-25	Powerpole® 15A 25 pack	$19.95
PP- 30-10	Powerpole® 30A 10 pack	$9.95
PP- 30-25	Powerpole® 30A 25 pack	$19.95
PP- 45-10	Powerpole® 45A 10 pack	$14.95
PP- 45-25	Powerpole® 45A 25 pack	$29.95

Powerpole® Splitters



PD-4

4 position power distribution block for 15 / 30 / 45 Powerpoles®. **HRO Price $23.95**



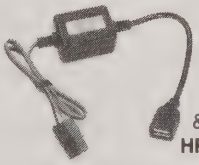
PD-8

8 position power distribution block for 15 / 30 / 45 Powerpoles®. **HRO Price $34.95**

Cigbuddy



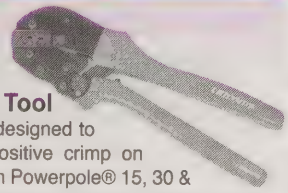
Portable cigarette lighter plug to Powerpole® Adapter. **HRO Price $12.95**



USBbuddy

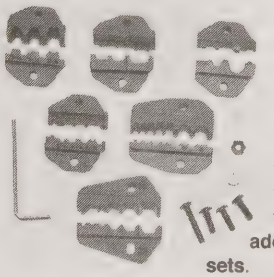
Portable power (12V) to USB (5V) converter & device arger. **HRO Price $19.95**

Tools



TRIcrimp Tool

Exclusively designed to provide a positive crimp on the Anderson Powerpole® 15, 30 & 45 amp contacts in one tool. Crimper for Anderson Power Products. **HRO Price $39.95**



Tri-Dies

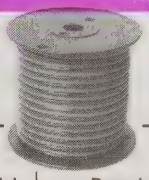
Expand the functionality of your TRIcrimp tool with these **additional die sets**. Easily crimp OEM T, HF / VHF connectors, SB50 / PP75 contacts, hex crimp for various coaxial cable connectors, non-insulated terminals, insulated terminals, end sleeves. **HRO Price $59.95**



WattMeter-PP

Measuring capacity up to 60 V and 130 A. Bright blue backlit LCD display. Measures 8 electrical parameters: Amps, Volts, Watts, Amp-hours, Watt-hours, Peak Amps, Minimum Volts (Sag), Peak Watts. With Powerpole® connectors. **HRO Price $59.95**

Red / Black Wire



Model	Description	HRO Price per Roll
RB-12-25	25 ft Roll 12 Gauge	$24.95
RB-14-25	25 ft Roll 14 Gauge	$19.95
RB-18-25	25 ft Roll 18 Gauge	$10.95
RB-22-25	25 ft Roll 22 Gauge	$6.95
Model	**Description**	**per Foot**
RB-08	Red/Black 8 gauge wire	$1.56
RB-10	Red/Black 10 gauge wire	$1.25
RB-12	Red/Black 12 gauge wire	$0.99

MFJ ANTENNA TUNERS

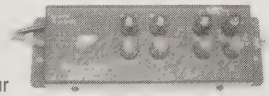
DC Power Strips



MFJ-1118

High current multiple DC outlet. Use for two HF and / or VHF transceivers and six or more accessories from your transceiver's main 12 VDC power supply.

MFJ-1117

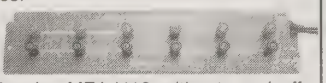


For powering four HF / VHF radios (two at 35 amps each and two at 35 amps combined) simultaneously.



MFJ-1116

Deluxe multiple DC power outlet. 8 outlets for powering accessories.



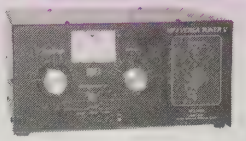
MFJ-1112 is like the MFJ-1116 without on / off switch, voltmeter and fuse. 6 pair outlets.

MFJ-1129

Get the best of both connectors. Has Anderson Powerpoles® and high-current binding posts. Outlets 1, 2, 4-8 are Powerpoles®, outlet 3 is a 35A high current binding post. Includes 7 pairs of Powerpole® 35A contacts, ten fuses.

MFJ-1128: 12 outlets, factory installed fuses, handles 20 amps total.
MFJ-1126: 8 outlets. (12) 35A contacts.
MFJ-1124: 6 outlets. (8) 35A contacts.

HF Roller Inductor Tuners



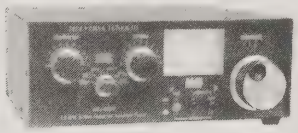
MFJ-989D

The world's most popular legal limit antenna tuner! Easily handles 1500 Watts SSB / CW, 1.8 to 30 MHz including MARS / WARC bands. 500 pF air variable capacitors, AirCore™ roller inductor with fast-tune crank knob, TrueActive™ peak-reading cross-needle SWR / Wattmeter, high voltage current balun, more! 12-7/8 W x 6 H x 11-5/8 D inches.

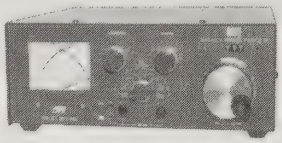
MFJ-986

Similar to MFJ-989D, but "D" has 2-knob tuning (differential capacitor and AirCore™ roller inductor) to make tuning fool-proof and easier than ever.

MFJ-962D



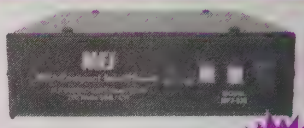
Handles 1.5 KW PEP SSB amplifier input power (800 W output). Peak-reading cross-needle SWR / Wattmeter, AirCore™ roller inductor.



MFJ-969

Covers 6 thru 160 meters! 300 Watts PEP SSB. TrueActive™ peak-reading SWR / Wattmeter, antenna switch, built-in dummy load, 4:1 balun, Lexan® front panel. 3-1/2 H x10-1/2 W x 9-1/2 D inches.

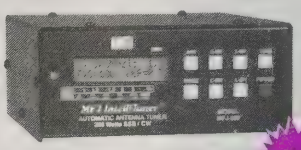
Automatic Tuners



MFJ-939I/K/Y

NEW!

From 2 to 200 Watts automatic antenna tuner. Plug and Play for ICOM, Yaesu, Alinco and other HF rigs. Has 20,000 memories, covers 1.8-30MHz, powered by transceiver and includes interface cable. Requires adjustment of internal jumper and cable for specific radio. Audio SWR meter, small size, instant recall and fast tuning.



MFJ-929

NEW!

200 Watt automatic HF antenna tuner in a compact size 6-1/2 W x 2-7/8 H x 8-3/8 D inches. Ultra-fast, 20,000 VirtualAntenna™ Memories, antenna switch, efficient L-network, matches 6-1600 Ohms, 1.8-30 MHz. Digital SWR / Wattmeter, radio interface.

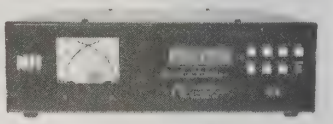


MFJ-993B

300 Watt automatic HF antenna tuner is like the MFJ-929, but you can select 300 Watts (6-1600 Ohms matching range) or 150 Watts (6-3200 Ohms matching range). Also has 4:1 current balun, remote control port.

MFJ-994B

600 Watt Intelli-Tuner™. Like MFJ-993B, but has 10,000 VirtualAntenna™ memories and handles 600 Watts CW / SSB, matches 12-800 Ohms. Does not have LCD display, antenna switch or 4:1 balun.



MFJ-998

1500 Watts SSB / CW Intelli-Tuner™. Digital and analog SWR / Wattmeter, ultra-fast, automatic tuning, wide range (12-1600 Ohms from 1.8 to 30 MHz), radio interfaces, built-in antenna switch for two coax / long wire, automatic bypass to protect your amplifier, field upgradeable software.

HF Switched Inductor Tuners



MFJ-945E

HF / 6 meter mobile tuner. Extends mobile antenna bandwidth. Tiny 8 x 2 x 6" fits easily in car.

MFJ-971



Portable / QRP tuner tunes coax, balanced line, random wire 1.8-30 MHz. 30 / 300 or 6 Watt ranges. Matches MFJ QRP rigs. 6 x 6-1/2 x 2-1/2 inches.



MFJ-902B

Tiny Travel Tuner, 4-1/2 x 2-1/4 x 3", full 150 W, 80-10 M, tuner bypass switch.

MFJ-904H

Similar but adds SWR / Wattmeter, 4:1 balun. 7-1/4 x 2-1/4 x 2-3/4 inches.



MFJ-949E

More hams use MFJ-949s than any other antenna tuner! 300 Watts, 1.8 to 30 MHz, custom inductor switch, 1000 volt tuning caps, full size peak / average lighted cross-needle SWR / Wattmeter, 8 position antenna switch, dummy load, scratch proof Lexan® front panel. 3-1/2 H x 10-5/8 W x 7 D inches.

MFJ-948

Economy version of MFJ- 949E, less dummy load, Lexan® front.

MFJ-941E

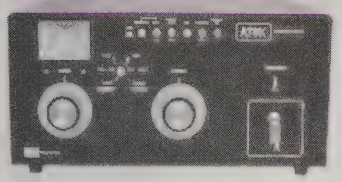
Super value tuner handles 300 Watts PEP, covers 1.8-30 MHz, lighted cross-needle SWR / Wattmeter, 8-position antenna switch, 4:1 balun, 1000 volt capacitors.

MFJ-901B

Wide range 200 Watt PEP versa tuner. Covers 1.8 to 30 MHz.

Palstar ANTENNA TUNERS

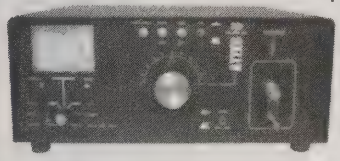
Designed by Hams for Hams. Made in the USA.



AT-5K Antenna Tuner

The AT5K takes power handling to the next level over the AT4K, coming in with a rating of 3500 Watts single tone continuous performance with low losses and wide Z range. Palstar's AT5K, like its AT4K little brother, has a T-matching network utilizing a 1:1 unbalanced-to-balanced transformer at the INPUT of the network.

- 3500 Watts single tone, high efficiency, low tuner losses and wide Z range.
- 160m to 15m with limited Z range on 10m.
- Balanced output with high power 5 kW Teflon® wire balun at the input of tuner circuit.
- Custom, large plate variable capacitors (600pF @ 6 kV).
- Ferrite 1:1 input balun.
- 10 Amp 7 kV CERAMIC 3.25" body roller inductor (35 μH) wound with 10 ga. plated solid copper wire.
- Six-position switchable antenna input switch with 7 kV, 10 Amp contacts.
- Peak and peak hold dual cross-needle metering (1-2 sec hold) with backlighting.
- Fan cooling for extended 100% duty cycle operation.

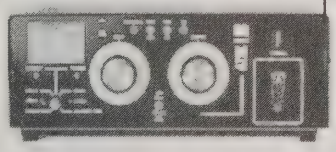


AT2KD Antenna Tuner

The AT1500DT and the AT1KP have been combined into a new 2kW tuner. The AT2K has all our features such as: peak and peak-hold; a resonant free roller system to operate from 6m to 160m continuously; new LED lit meter system; and a new compact size.

- Power rating 2000 Watts PEP.
- Frequency tuning 160m to 6m.
- Impedance matching range 20 ohms to 1200 ohms.
- Easy and quick tuning with only two controls.
- Palstar designed ceramic body roller inductor.
- 6 position mode switch for multiple antennas.
- Meter power range 0-300 Watts / 0-3000 Watts.
- Active peak and peak hold dual cross-needle metering (1-2 sec hold) with LED backlighting.
- Differential capacitor tuning with 2 stators and 1 rotor (420 pF - 13pF - 420pF @ 5kV).
- High power ferrite 1:1 or 4:1 current balun (optional) externally installed.
- Size: 12 1/2" x 5 1/2" x 16".
- Weight: 12 lbs.

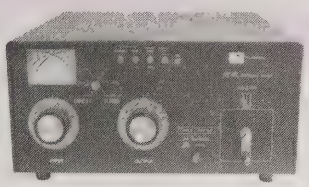
Optional 1:1 or 4:1 Current Balun available.



AT-2K Antenna Tuner

The smaller roller inductor allows the AT2K to tune 6 meters, while a relay-switched toroid adds the extra inductance needed for 160 meter coverage. Newly designed capacitors feature lower minimum capacitance for improved high band performance, while maximum capacitance has been increased to 400 pF for better low band performance.

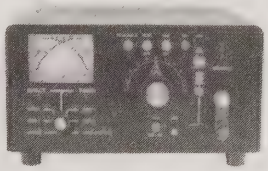
- Power rating 2000 Watts PEP.
- Impedance range 20 to 1500 ohm 160m to 10m (assuming resistive load).
- Ferrite 4:1 current balun.
- Low minimum custom variable capacitors (15pF to 400pF at 4.5 kV).
- 18 μH 5 kV ceramic body roller inductor with turns counter.
- Silver plated inductor wheel shaft and contact wheel.
- 10 μH relay-switched add-on inductor for 160 meters, roller inductor with turns counter.
- Active peak / peak hold cross-needle metering with backlighting.
- 6 position ceramic wafer antenna selector switch.



AT4K Antenna Tuner

The AT4K has a power rating of 2500 Watts single tone continuous.

- Unbalanced/balanced output (switch activated on front panel) with high power balun at the input of tuner circuit.
- T match circuit: impedance matching range 8 ohms to 2000 ohms.
- Custom large value (460pf) variable capacitors at 6 kV.
- 10 amp edge-wound silver plated ceramic body roller inductors crank handle driven.
- Switchable antenna inputs.
- Ferrite 1:1 input balun.
- Peak / peak hold dual cross-needle metering (1-2 sec hold) with backlight.
- Size: 15" x 7" x 16"deep.
- Weight: 20 lbs.



AT-500 Antenna Tuner

Covering 160 to 6 meters, the AT-500 features a differential tuning capacitor with 2 stators and 1 rotor, a precision ceramic body roller inductor, and a 4:1 ferrite current balun for balanced line feeds.

- Power rating: 600 Watts PEP SSB; 500 Watts CW.
- Output to both balanced and unbalanced lines.
- Impedance matching range 20 ohms to 1500 ohms.
- 6 position mode switch for multiple antennas.
- Active crossneedle peak / peak hold metering with backlighting.
- Meter power range 0-300 Watts / 0-1000 Watts.
- Differential capacitor tuning with 2 stators and 1 rotor (360pF - 14pF - 360pF @ 2.5kV).

Palstar Products

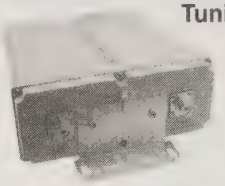
Model	Description	Price
	Antenna Tuners	
HF-AUTOTUNE	1500 W Antenna Tuner	$1,494.95
AT5K	3500 W Antenna Tuner	$1,195.95
AT4K	2500 W Antenna Tuner	$875.95
BT1500A	1500 W Balanced Antenna Tuner	$739.95
AT2K	2000 W Antenna Tuner	$554.95
AT2KD	1999 W Differential Antenna Tuner	$554.95
AT500	600 W Antenna Tuner	$479.95
	Wattmeters	
PM2000A	2000 W Wattmeter 1.8Mhz to 60Mhz	$189.95
PM2000AM	200 W Wattmeter mobile 1.8Mhz to 60Mhz	$184.95
	Antenna Analyzer	
ZM30	Antenna Analyzer SWR 1Mhz - 30 Mhz	$379.95
	Shortwave Accessories	
R30A	Shortwave Receiver AM/SSB Collins Filters	$879.95
SP30B	Speaker 12 Watts (for R30C/CC)	$99.95
	Dummy Loads	
DL1500	Dummy Load 1500 W - 450 Mhz	$189.95
DL2K	Dummy Load 2000 W - 30 Mhz meter/fan	$379.95
	Baluns	
B4KC 4:1	Balun 4/1 4000W-Voltage-Hi-Z	$89.95
B4KC 1:1	Balun 1/1 4000W-Current-Low-Z	$89.95

ANTENNA TUNERS

LDG ELECTRONICS

Remote Tuners

A Technological Breakthrough in Remote Tuning!



RT-600 / RC-600

Automatic Antenna Tuner / Remote Control

The RT-600 is a 600 watt PEP coax in / coax out remote tuner designed to be placed near the feedpoint of the antenna. If you are worried about power or signal loss due to SWR in your feedline, the RT-600 is the answer. Place the RT-600 near the feedpoint and it will virtually eliminate all feedline loss due to SWR. DC powered over the coax by the RC-600 control unit (included).

- 2000 memories for instantaneous band changing.
- 1.8 to 54.0 MHz coverage. Built-in frequency sensor.
- For dipoles, verticals, Vs, beams or any coax-fed antenna. Optional external balun allows tuning of random length, long wire or ladder line fed antennas.

HRO Price $449.95



RT-100 / RC-100

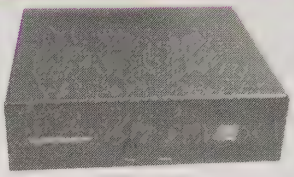
Automatic Antenna Tuner / Remote Control



Place this 100 watt coax-in / coax-out tuner near the feedpoint of the antenna and it will virtually eliminate all feed line loss due to SWR. The RT-100 is DC powered over the coax, so no extra cables are needed. Add your own DC injection circuit or use the LDG RC-100 to power and control the tuner from your shack. **The RC-100** will provide DC power over the coax as well as control for auto mode, lock, and tune.

HRO Price $249.95

Yaesu Matching



YT-1200

Desktop Tuner for Yaesu Tranceivers

Seamless integration with FT-450 series, FT-950, FT-991, FTdx1200 & 3000 and non-D FT-2000. The YT-1200 includes a CAT/power cable . Just press the tune button on the tuner and everything else happens automatically! The mode is set to carrier and the RF power is reduced, a tune cycle runs and the radio is returned to the original settings. **HRO Price $259.95**

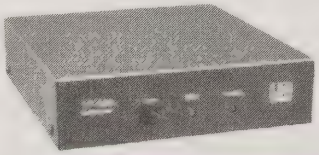
Rig Matching

AL-100



For Alinco Transceivers

The AL-100 allows you to interface to any Alinco HF radio including the new DX-SR8T, DX-77, and DX-70. A front panel LED indicates tuning status. The AL-100 has 2000 memories and is powered and controlled over the supplied interface cable. **HRO Price $149.95**

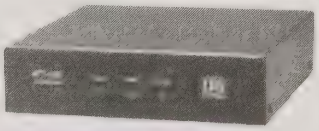


IT-100

Especially for Icom Radios

The ideal tuner for IC-7000 and other Icom radios covers all frequencies from 1.8 – 54 MHz and will automatically match your antenna in a flash. Tunes 1 to 125 Watts SSB, CW and digital modes. Has a front panel push button for manual or automatic tune plus a status LED. Tune with the IT-100 or use your radio. Includes more than 2,000 memories. Uses latching relays. Tuning range is 4 – 800 ohms, powered by your radio. Includes Icom interface cable. **HRO Price 179.95**

KT-100



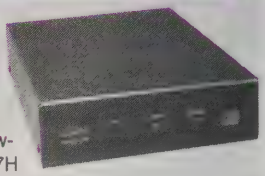
For Kenwood AT-300 Compatible Transceivers

The KT-100 allows uses the TUNE button on any AT-300 compatible Kenwood transceiver. Front panel LEDs indicate tuning status and show a match in seconds. The KT-100 has 2000 memories for band and frequencies. Using the supplied cable, plug the unit into your transceiver.

HRO Price $199.95

Z-817H

Automatic Tuner for the Yaesu FT-817



Using the Tokyo Hy Power HL-45B, the Z-817H is an autotuner for QRP radios including the Yaesu FT-817(ND). The Z-817H interfaces to the CAT port (ACC) on the back of the FT-817 radio with the provided cable. It switchs to PKT mode, transmits a carrier, tunes the tuner, then restores the radio to the previous mode! It connects to the THP HL-45B for automatic band selection on the amp. **HRO Price $159.95**



Z-817

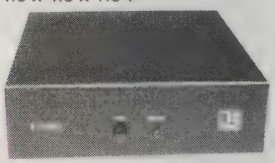
Automatic Tuner for the Yaesu FT-817

The Z-817 automatic tuner, operating on 160 – 6 meters, attaches to the CAT port with the provided cable. Press the One-Touch-Tune button on the tuner and the Z-817 sets mode and power on the radio, tunes, then restores mode and power. Tuning time is 0.2 seconds for recalling one of its 2000 memories, and average time for a full is 2.5 seconds. The Z-817 also works with any QRP radio with output of up to 20 Watts. Press the tune button on the tuner while transmitting a carrier and it finds a match. Includes one foot CAT interface cable and coax jumper. Has CAT-thru port to allow computer control of radio. Tuning range of SWR loads from 6 to 450 ohms. It is powered by four AA batteries (not included). Size is 4.5 x 4.5 x 1.5".

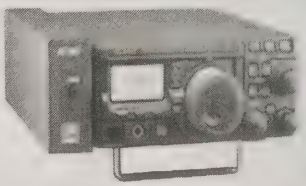
HRO Price $119.95

YT-100

Auto Tuner for Yaesu Transceivers



The YT-100 includes a cable that connects with your FT-857, FT-897 or FT-100 (including all D models) to make it an integrated tuner powered by the interface. Press the tune button on the tuner, and everything else happens automatically: mode and power are set, a tune cycle runs, and the radio is returned to its original settings. Handles RF power from 1 to 100 Watts. CAT thru port for radio computer control. 2000 memories. 1.8 – 54 MHz coverage. **HRO Price $199.95**



AT-897Plus

Auto Tuner for the Yaesu FT-897

(radio not included)

The microprocessor controlled AT-897Plus mounts on the side of your FT-897 just like the original equipment. A front panel button initiates the tuning sequence while lowering the RF power to 25 Watts and will bypass the tuner if pressed momentarily. The AT-897 takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner. Tunes any coax fed antenna. Use a balun for long wires. **HRO Price $199.95**

LDG ELECTRONICS TUNERS

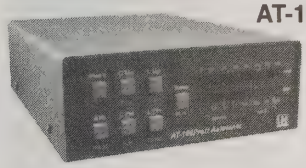
Tune Two Antennas



AT-1000ProII

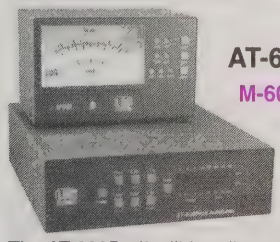
M-1000 meter optional

The LDG AT-1000ProII features an auto mode that automatically starts a tuning cycle any time the SWR exceeds a limit you set. Tune two antennas and switch between them. 2000 memories store tuning parameters for each antenna. The unit operates at any power level between 5 and 1000 Watts peak RF input. A large, easy to read LED bargraph has two selectable ranges. It will tune from 1.8 to 54 MHz matching a wide range of antennas.
HRO Prices: AT-1000ProII $519.95
M-1000 Meter Optional **HRO Price $129.95**



AT-100ProII

This automatic desktop tuner covers 1.8 – 54 MHz. A two-position antenna switch allows you to switch instantly between two antennas. The AT-100 ProII requires just 1 Watt for operation, but will handle up to 125 Watts, making it suitable for everything from QRP to a typical 100 Watt transceiver. It includes more than 2,000 memories for each antenna, automatically storing tuning configurations for each frequency and band as you use them. Includes antenna and bypass indicators on front panel.
HRO Price AT-100ProII $209.95



AT-600ProII

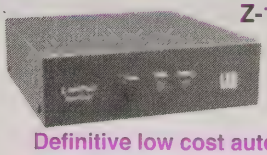
M-600 meter optional

The AT-600ProII will handle up to 600 Watts SSB and CW, 300 on RTTY (1.8 – 30 MHz), 250 Watts on 54 MHz.

- Processor-controlled switched-L tuner.
- Matches coax-fed antennas. Matches 10:1 SWR down to 1.5:1.
- Use with longwires, random wires and antennas fed with ladder line by adding an optional balun.
- Two antenna ports.
- Requires 11-16VDC at 750mA.

HRO Prices: AT-600ProII $349.95
M-600 Meter optional **$129.95**

Low-Cost Tuner



Z-100Plus

Definitive low cost auto tuner!

Designed to provide 125 Watt power handling in SSB, CW and digital modes, the Z100 Plus features 2000 memories that store both frequency and tuning parameters. Operating frequencies are stored with tuning parameters to make memory tunes in a fast 0.1 seconds. Full tunes take an average of only 6 seconds. The tuner will run on any voltage source from 7 – 18 volts. Six AA batteries (not supplied) will run it for a year of normal use.
HRO Price $149.95

Portable Tuner

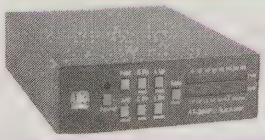


Z-11ProII

The Return of a Legend

Here is everything you need in a small, portable tuner designed for battery operation. Only 5" x 7.7" x 1.5" and weighing 1.5 pounds, it handles 0.1 to 125 Watts, making it ideal for both QRP and standard 100-Watt transceivers from 160 – 6 meters. With 8,000 memories, the Z-11 ProII uses a state-of-the-art processor-controlled switched-L tuning network. It matches dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line.
HRO Price $169.95

For High Power



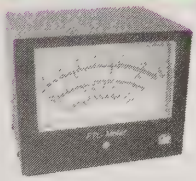
AT-200ProII

The first auto tuner designed for high-powered transceivers

The AT-200 features LDG's "3-D Memory Array" allowing up to eight antenna settings to be stored for each frequency. Handles up to 250 Watts SSB or CW on 1.8 – 30 MHz, and 100 Watts on 54 MHz **(including 6 Meters)**. Rugged and easy-to-read LED bar graphs show power and SWR. A function key on the front panel allows you to access data such as mode and status. An LED indicates bypass mode and another shows which antenna is selected.
HRO Price $239.95

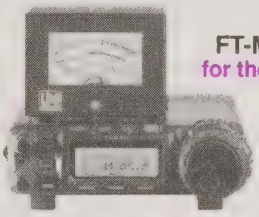
SWR METERS

SWR for Yaesu



FTL-Meter for the Yaesu FT-897 / 857

The large, easy-to-read FTL-Meter is a plug-and-play solution to your metering needs for the FT-857(D) and FT-897(D). Attach to the meter jack at the front of the rig. LDG's new version presents a lush, highly readable 4.5 inch meter face with calibrated scales for signal strength and discriminator reading on receive, power output, SWR, modulation, ALC action and supply voltage on transmit. Functions are selectable from the radio's menu."4.5" meters also available for IC-7600 and IC-7700. **HRO Price $79.95**



FT-Meter – Blue for the Yaesu FT-897 or FT-857

(radio not included)

LDG's Blue FT-Meter has a highly readable 2.5" meter face with calibrated scales for signal strength and discriminator reading on receive, power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu. Easily visible from anywhere on your desk or dash, the FT-Meter is illuminated by any external 12 VDC source. It comes fully assembled and ready to go; just plug it into the radio. **HRO Price $54.95**

Mobile Tuner

WEST MOUNTAIN RADIO



TARGETuner

#58425-1473 **HRO Price $234.95**

TARGETuner mobile antenna management system provides a controller with intelligent automatic controls for the tunable mobile screwdriver antenna, and a remote RF module.

- Senses RF signal into the antenna.
- No radio data link required for band selection.
- Direction switch and motor control of speed and direction.
- Programmable for stall current sensing.
- Easy programming and memory capabilities.
- Auto tuning.

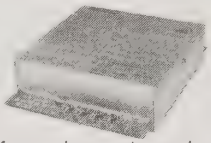
ANTENNA TUNERS

COAX SWITCHES

SGC

Smartuners™ are the most versatile and reliable antenna couplers available. Working with power levels from 1.5 to 500 Watts and with frequency ranges spanning the HF bands from a single antenna, they provide all-purpose tuning ideal for base, mobile, or portable operation. Just provide 12 V, connect to transceiver, antenna, and ground, and get on the air with minimum SWR. Visit sgcworld.com for a detailed review of the Smartuner family, and find the right one for your needs. Stop tuning, start talking.

The Budget Smartuner™
SG-239 – $185.95



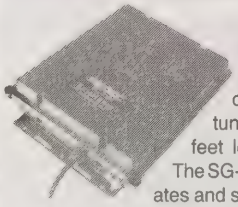
Get quality performance from a low cost package. The SG-239 will operate from 1.8 to 30 MHz with 1.5 to 200 W. Like all Smartuners, it gives you the most flexibility because it will work with any antenna and any transceiver. It also has push buttons for a manual tune option. It weighs only 2 pounds, so you can use it for base or portable.

The General Purpose Smartuner™
SG-237
$299.95



The SG-237 is the most popular Smartuner. Its rugged construction and small size allow for maximum flexibility. It has a 100 W power rating and expanded coverage to 60 MHz, matching it perfectly with the most popular HF + 6m transceivers. It will work with any balanced or unbalanced antenna including whips, backstays, dipoles, loops and long wires.

HF Antenna Coupler
SG-235
$1099.95



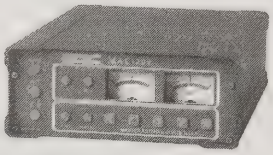
This fully automatic coupler for 500 Watts will tune an antenna at least 23 feet long for the HF bands. The SG-235 automatically evaluates and switches 64 input and 32 output capacitor combinations plus 256 inductance combinations in a pi network design. The tuner remembers the chosen frequency and tuning values and automatically reselects those values when transmitting on that frequency.

The Original Smartuner™



SG-230
$499.95

The SG-230 Smartuner was the first product in the HF market to offer fast, flexible tuning without any user interface. It is built in a rugged, factory sealed ABS enclosure. With this tuner and any single antenna, you will have continuous coverage from 1.8 to 30 MHz and it can be used with any transceiver you'll ever own. The SG-230 can be used in base station, mobile, marine and aviation applications, and has been the "Gold Standard" of automatic antenna tuning for more than a decade.



Master Antenna Controller
MAC-200

Select the right antenna, for the right band, at the right time with the MAC-200. You can select among up to five antennas and tune automatically to minimum SWR. Monitor your power and SWR with meters on the front panel. The MAC-200 automatically selects the correct antenna for your operating frequency, quickly and accurately. It stores the correct settings in memory and will recall them in less than ten milliseconds. **HRO Price $254.95**

SGC Smartuners

Specifications	SG-230	SG-235	SG237	SG-239	MAC-200*
PEP Input (W)	3-200	3-500	3-100	1.5-200	1.5-200
CW Max Input (W)	80	200	40	80	80
Frequency (MHz)	1.8-30	1.8-30	1.8-60	1.8-30	1.8-60
Input Current (A)	0.9	1.4	0.3	0.23	0.23
Antenna Length (<3.3MHz)	8 ft	50 ft	8 ft	40 ft	40 ft
Antenna Length (>3.3MHz)	23 ft	300 ft	28 ft	100 ft	100 ft
Dimensions (in)	16x12x3	16x12x3	7x6x1.5	7.5x6x2	8.5x6.5x3
Weight (lbs)	8	8	2	2	5
Waterproof	yes	yes	yes	no	no
HRO Price	$499.95	$1,099.95	$299.95	$185.95	$254.95

* Desktop Unit controls and switches up to 5 units.

HF Antenna Switches

DAIWA

2 Position Coax Switch
CS-201



Daiwa has two heavy-duty coaxial switches. Both are usable to 500 MHz and the unused positions are grounded. Switches are available at slightly higher prices with type "N" connectors. **HRO Price $32.95**

DIAMOND ANTENNA

2-Position Coax Switch
CX-210A

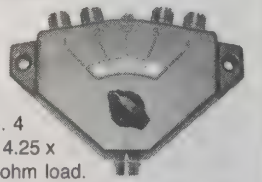


Diamond's heavy-duty wideband coax switch, the CX-210A, is a high quality 2 position coax switch with SO-239 connections. Like most Diamond products, this switch is very well built and durable. Two screws on the back allow you to mount the switch to a flat surface. **HRO Discount Price: $49.95**

MFJ



MFJ-1702C
2 position antenna coax switch. New center ground, lightning arrestor. 2.5 kW PEP, 1 kW CW. Loss below .2 dB. 50 dB isolation @ 450 MHz. 50 ohms. 3 x 2 x 3 inches.



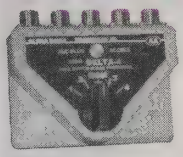
MFJ-1704
Like MFJ-1702C. 4 positions. 6.25 x 4.25 x 1.25 inches. 50 ohm load. SWR 1.1: 1 to 30 MHz; 1.5:1, 30-650 MHz. SO-239. 2.25 x 2.25 x 7 inches.

MFJ-1701
6 position antenna switch, 50-75 ohms. Handles 2 kW PEP or 1 kW CW. 1.8-30 MHz. SO-239 connectors. Unused positions automatically grounded.

MFJ-1700C
6 position antenna and transceiver switch switches between 1-6 antennas and 1-6 rigs. Handles 2 kW PEP or 1 kW CW, 1.8 to 30 MHz.

Lightning Protected Coax Switches

ALPHA DELTA

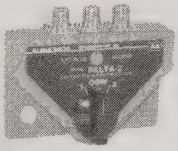


Delta-4B

4 Position Switch

This lightning protected 4 position RF coax switch uses the Alpha Delta ARC-PLUG® cartridge to protect your equipment from electrical surges. The exclusive center "off" (ground) position internally disconnects and grounds all antenna circuits. It has cast housing with constant impedance micro-strip cavity construction. Features a positive detent roller bearing switch drive. Handles full legal power. Delta-4/N for type "N" connectors. The Delta-4 handles frequencies through 500 MHz and the Delta-4/N through 1.3 GHz. **HRO Price $89.95; Type N $99.95.**

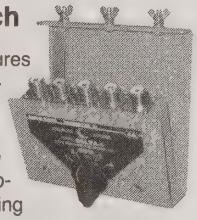
Delta-2B



2 Position Switch

This 2 position coax switch has the same features as the Delta-4. Order UHF or type "N" connectors for low-loss performance through 1.3 GHz. **HRO Price $59.95; Type N $74.95.**

Antenna Selector Console Desktop Coax Switch

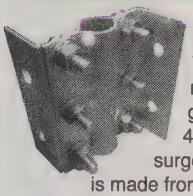


This series retains all the features and specifications of the precision **DELTA-4B** series, including ARC-PLUG® module surge protection, in a desk top console that will sit right next to the equipment on your desk without having to be secured or bolted down. The console features a powder-coated steel housing and a solid brass ground buss, with #10 wire attachment hardware across the rear of the housing providing a common ground point for all station equipment and accessories.

Model ASC-4B Antenna Selector Console Switch (4 position, UHF Connectors thru 500 MHz). **HRO Price $149.95**

Model ASC-4B / N Antenna Selector Console Switch (4 position, N Connectors thru 1.3 GHz). **HRO Price $159.95**

Ground Clamp



Model UCGC

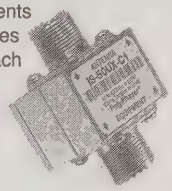
The UCGC clamp mounts directly on a standard 5/8" copper ground rod. You can attach up to 4 Model ATT 3G50 series coax surge protectors. The ground clamp is made from solid copper and has stainless steel mounting hardware with 6 bolts, washers, and nuts. It includes an adjustable copper ground wire clamp for your station single point ground wire of up to 4 gauge in size. **HRO Price $49.95**

Lightning Protection

PolyPhaser® CORPORATION

Coaxial Impulse Suppressors

Hermetically-sealed voltage sensitive gas tubes and other components assure that surge voltages and currents will not reach your equipment.



Flange Mounts

HRO Price
$61.95 - $63.95

Model	Frequency Range MHz	Maximum Power Watts
IS-50 UX-CO	1.5-700	HF – 2 kW VHF – 375 W UHF – 125 W
IS-50 NX-C0	1.5-700	HF – 2 kW VHF – 375 W UHF – 125 W
IS-50 NX-C2 w/ N conn.	125-220 220-700 700 MHz	VHF – 375 W UHF – 125 W 1 GHz – 50 W



Bulkhead Mounts

HRO Price $64.95
Type-N HRO Price $69.95

Model	Frequency Range MHz	Maximum Power Watts
IS-B50 LU-CO-ME	1.5-400	HF – 2 kW VHF – 375 W UHF – 125 W
IS-B50 HN-CO w/N connector	1.5-700	HF – 3kW VHF – 500 W UHF – 200 W

Rotator Control Protector

Model IS-RCT

Provides protection for rotator controllers, motors, control box and other nearby equipment.
HRO Price Call

Power Line Extension Protector

Two-outlet extension cords with master on/off switch and circuit breaker.

Model	Length	HRO Price
IS-PLDO-120-15A	15' 120 V@15 A	Call
IS-PLDO-120-20A	6' 120 V@20 A	Call

Grounding Panel

Model CU-SPGP

A .062" thick copper plate mounted on a painted 1/2" plywood backing. Mounting protectors and a single ground point established for station equipment. Comes with concrete anchors, all mounting screws, 10' of 1.5" copper grounding strap, 2 brass sandwich plates, and joint compound. 18" x 12". **HRO Price $CALL**

Surge Protectors

MFJ

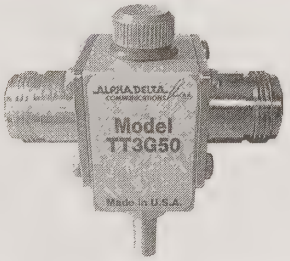
MFJ-270



Safeguard your expensive gear from static electricity and lightning induced surges traveling on 50 Ohm coaxial line. Ultrafast gas discharge tube safely shunts up to 5000 amps of peak impulse current harmlessly to an independent ground. SWR less than 1.1:1. Less than 0.1 dB loss. Use up to 1000 MHz. Handles 400 W PEP.
MFJ-270N has low loss N-connectors.
MFJ-272 with SO-239s, handles 1.5 kW PEP.

ALPHA DELTA

Transi-Traps



The **ATT3G50** coaxial surge protector was designed for the cellular, microwave point-to-point, and the broadband wireless industry. These products feature very low loss performance through 3 GHz. Typical loss is 0.1 dB at 1 GHz through 0.5 dB at 3 GHz. This series represents the lowest loss broadband design in the industry. Choose type "N" or "UHF" connector.

The Defense Logistic Agency (DLA) has assigned National Stock Number (NSN) 01 5470278 to the Model TT3G50 Coax Surge Protector and NSN 5325 01 5466841 to the 3G50 ARC-PLUG® Cartridge for use in all US Military and NATO applications, worldwide.

ATT3G 50N
200 W – 3.0 GHz, Type N $59.96

ATT3G 50NHP
2 kW – 3.0 GHz, Type N $59.95

ATT3G 50U
200 W – 500 MHz, UHF $49.95

ATT3G 50UHP
2 kW – 500 MHz, UHF $49.95

CABLE ASSEMBLIES / CONNECTORS

Cable Assemblies

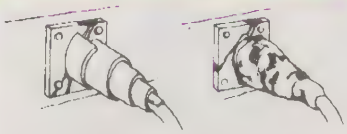
CABLE X-PERTS Ready-Made Coax Cable Assemblies

Model	Connector Both Ends	Burial	UV Resis-tant	Shields	Attenuation dB @ 100 Feet	Best Frequen-cies
CXP1318FC	PL259	Yes	Yes	2 (100% bonded foil + 95% TC Braid V/F 84%	50 MHz 1.1 150MHz 1.9 450MHz 3.3	50-450 MHz
CXP008C	PL259	No	Yes	1 (95% BC Braid) V/F 78%	10 MHz 0.51 30MHz 0.9 50MHz 1.2	1-50 MHz
CXP1318FN	"N"	Yes	Yes	2 (100% bonded foil + 95% TC Braid V/F 84%	150MHz 1.9 450MHz 3.3	150 MHz and Higher
CXP08XC	PL259	No	Yes	1 (95% BC Braid) V/F 78%	10 MHz 0.98 30MHz 2.0	1 - 30 MHz
CXP213C	PL259	Yes	Yes	1 (97% BC Braid) V/F 66%	10 MHz 0.62 30MHz 1.2	1 - 30 MHz (High Power)

Part Number	Length (feet)	HRO Price
RG213/U w/PL259		
CXP213C100	100	$124.95
CXP213C50	50	$68.95
CXP213C6	6	$23.95
CXP213C3	3	$22.95
RG8/U Foam w/PL259		
CXP008C100	100	$119.95
CXP008C50	50	$62.95
CXP008C25	25	$39.95
CXP008C12	12	$32.95
CXP008C6	6	$29.95
CXP008C3	3	$26.95
RG8X-Mini w/PL259		
CXP08XC100	100	$54.95
CXP08XC75	75	$44.95
CXP08XC50	50	$38.95
CXP08XC25	25	$31.95
CXP08XC18	18	$25.95
CXP08XC6	6	$23.95
CXP08XC3	3	$19.95
9913-type Flexible w/N-Connector		
CXP1318FN150	150	$179.95
CXP1318FN100	100	$139.95
CXP1318FN50	50	$84.95
CXP1318FN25	25	$51.95
CXP1318FN6	6	$29.95
CXP1318FN3	3	$28.95
9913-type Flexible w/UHF Connectors		
CXP1318FC100	100	$129.95
CXP1318FC50	50	$65.95
CXP1318FC6	6	$23.95
CXP1318FC3	3	$21.95
Tinned Copper Ground Braid		
235	1" wide	$1.84/ft
2332	1/2" wide	$0.79/ft
235RT-5	1" 5 ft long*	$19.95
235RT-10	1" 10ft long*	$25.95
2332RT-5	1/2" 5ft long	$12.95
2332RT-10	1/2" 10ft long*	$15.95

* w/Ring Terminals

Coax-Seal



Coax-Seal will seal all types of coax fittings, baluns, antenna parts and connectors of any shape. Adheres to most surfaces. Wrap Coax-Seal around the object you want to protect and then mold it into shape. Keeps moisture out of the coax fitting on antenna feed lines. Need to make a change? Just remove it and start over. **HRO Price: $3.99 / roll**

CoaxWrap



CoaxWrap will provde your coax connections with outstanding protection from the weather. Just wrap the connection with the convenient roll. When you need access to the connection, the wrap removes easily. Available in red, white, blue, clear, and black.
Price per roll $5.99.

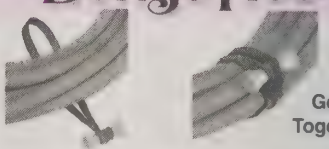
Connectors

Model	Description	HRO Price
BNC-44	BNC to UHF Adapter	$5.99
N-31	N to UHF Adapter	$9.99
PL-259ST	PL-259	$2.69
N-TGS	Type N Male	$6.99
UHF-08	4 hole SO-239 Chassis Connector	$4.99
UHF-10	Double Male UHF	$5.99
UHF-11	UHF Barrel	$4.99
UG-363-4	Long UHF-UHF Barrel	$10.99
UHF-15	RT. Angle Teflon, Gold Pin	$8.99
UHF-13	UHF "T"	$5.99
UHF-19	BNC to UHF Adapter	$6.99
UHF-18	UHF to N Adpter	$8.99

Free UPS Shipping on Orders Over $100 from the Store Nearest You

Cable Ties

BongoTies™



Get It Together!

BongoTies are handy elastic ties for cables and other unruly items. Perfect for audio, music, computer, office and home, sports, workshop and your Ham Shack. They are reusable, easy to apply and remove. The ties are made of high quality natural rubber and wood. (Not for outdoor use.)
HRO Price $5.49 for a bag of 10

COAX / ROTATOR CABLE / ROPE

We have RF cable available from

ABR Industries

ANDREW. BELDEN

CABLE X-PERTS

DAVIS RF JSC

TIMES MICROWAVE

Coax

Purchase coax in any length up to 500 feet.

RG8 / U

Standard RG8 /U, #13 stranded copper center conductor, cellular polyethylene insulation, 97% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 1.8 dB loss per 100' at 100 MHz. The most popular cable for HF/VHF/UHF. Use when long cable runs are not required.

RG213 / U

RG-213/U coax, #13 stranded copper center conductor, solid polyethylene insulation, 97% bare copper shield, non-contaminating PVC jacket, 50 ohm impedance, 66% velocity factor and 2.2 dB loss per 100' at 100 MHz. This RG-8 type cable is best for HF. It may be buried.

9913F-7

9913F-7 is RG8/U-type coax, #9.5 stranded copper conductor, foam polyethylene insulation, 100% foil plus 88% braid shield, PVC jacket, 50 ohm impedance, 84% velocity factor and 1.4 dB loss per 100' at 100 MHz. The best cable for VHF and UHF applications.

RG8X

RG8X is small diameter coax, #16 stranded copper center conductor, cellular polyethylene insulation, 95% bare copper shield, PVC jacket, 50 ohm impedance, 78% velocity factor and 3.7 dB loss per 100' at 100 MHz. Good for short VHF runs and most HF uses.

Rotator Cable

8 wire, standard duty - 8 wire cable using six #22 and two #18 tinned copper conductors. PVC insulation.

8 wire, heavy duty - 8 wire cable using 6 - #18 and 2 - #16 tinned copper conductors. PVC insulation; chrome PVC jacket.

When Ordering Cable

Please order in multiples of 50 feet. Continuous length spools up to 500 feet are available. Call for quotes.

ABR Industries

Complete Product Details on Page 66

ABR Industries manufacturers coax with a non-contaminating, ultra-violet resistant, and direct burial jacket.

Uses: **218XATC** - lightweight for mobile, dipole antennas, jumpers between equipment in tight places.

2213A - UV resistant, direct bury, solid polyethylene dielectric, high power, bands below 30MHz with amplifiers.

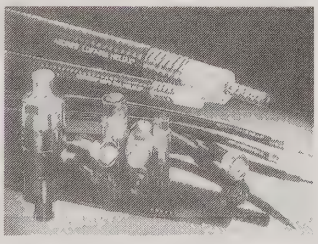
25400 - UV resistant, direct bury, for frequencies above 144MHz.

RG213/U w/Silver-Teflon/PL259		
Part Number	**Length (feet)**	**HRO Price**
2213A-PL-3	3	$21.95
2213A-PL-25	25	$44.95
2213A-PL-50	50	$69.95
2213A-PL-100	100	$124.95
RG8/U Direct Bury w/Silver-Teflon/PL259		
25400F-PL-1.5	1.5	$18.95
25400F-PL-3	3	$21.95
25400F-PL-12	12	$27.95
25400F-PL-50	50	$69.95
25400F-PL-100	100	$119.95

RG8X-Direct Bury w/Silver-Teflon/PL259		
218XATC-PL-1.5	1.5	$16.95
218XATC-PL-3	3	$18.95
218XATC-PL-6	6	$19.95
218XATC-PL-9	9	$21.95
218XATC-PL-18	18	$26.95
218XATC-PL-30	30	$32.95
218XATC-PL-40	40	$35.95
218XATC-PL-50	50	$37.95
218XATC-PL-100	100	$54.95

Coax & Connectors

ANDREW.



Andrew coax and all the matching connectors you will need are available as a special order drop shipment. Contact your nearest HRO store for complete details.

Model #	Cable Type	Diameter Inches	$/100 feet*
LDF2-50	Foam Dielectric	3/8 inch	CALL
LDF4-50A	Foam Dielectric	1/2 inch	CALL
LDF5-50A	Foam Dielectric	7/8 inch	CALL
FSJ4-50B	Superflex	1/2 inch	CALL

*Plus Shipping

Cable

TIMES

Call for Low Discount Prices on Times Cable

LMR-200 – RG58 type

This is a standard RG58 'type' outdoor cable that is ideal for jumper assemblies, short antenna feeder runs, or any application requiring an easily routed, low loss RF cable. It has a solid BC inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 83%. It will withstand 1000VDC, a peak power of 2.5 kW, and shielding effectiveness is >90 dB.

LMR-240 – RG8X type

This RG8X 'type' outdoor cable has a solid BC inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 84%. It will withstand 1500 VDC, a peak power of 5.6 kW, and shielding effectiveness is >90 dB.

LMR-400 – RG8 / RG213 type

This is a standard RG8 / RG213 'type' outdoor cable that has a solid BCCA inner conductor, foam polyethylene dielectric, aluminum tape outer conductor, a tinned copper overall braid and black polyethylene jacket. The velocity factor is 85%. It will withstand 2500 VDC, a peak power of 16 kW, and shielding effectiveness is >90 dB.

LMR-400-UltraFlex

Similar specs as LMR-400 with TPE jacket.

Antenna Rope

Synthetic Textiles

Black Dacron® Polyester

This antenna rope is constructed of strong, double braid Dacron® polyester. It is black for UV protection and has excellent resistance to mildew and abrasion. The rope ties and cuts easily, sealing effectively with a hot knife. No expensive hardware is required. Sizes and prices shown in the chart.

Size	Model	Strength	HRO Price*
3/32"	ST-3/32-100	260+ lbs	$9.95
3/16"	ST-3/16-100	770+ lbs	$16.95
5/16"	ST-5/16-100	1790+ lbs	$24.95

* Price per 100 feet

SOLDERING

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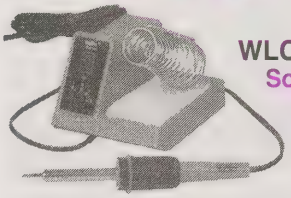


Mini Soldering Iron

The Mini is a lightweight portable, 65 W quick-heating soldering pencil. Temperature control is accurate, stable, and easily adjusted from 100 to 400° C. With dual temperatures and accelerated sensors, the unit can be in sleep mode and automatically warn of overheating. Four types of optional replacement soldering iron tips are available. **HRO Price $85.00**

- Safety sleep mode extends life of tips.
- MicroUSB port for programming software.
- Alert mode: OLED screen shows "warning" when temperature is higher than 400°C.

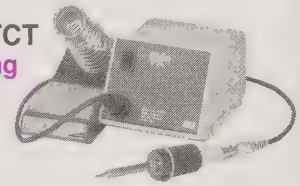
Weller®



WLC-100CT Soldering Station

HRO Price $79.95

- 40 Watt solder station, 110 volts.
- Adjustable 5-40 Watts with safety guard solder iron.
- Includes holders, sponge and tip.



WTCPTCT Soldering Station

HRO Price $189.95

A soldering station is a must for every ham shack.

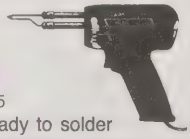
- Quick disconnect plug for iron and lighted on / off switch.
- Special "closed loop" method of controlling maximum tip temperature.
- Transformer powered with macro style, low voltage, temp controlled soldering iron.
- Power unit housed in impact resistant plastic.
- Separate conductor grounds iron tip and terminates at third pin of power cord.
- Uses PT series tips and operates at 600°F, 700°F and 800°F.



D650CT Solder Gun

HRO Price $79.95

Solder gun, 200 / 300 Watts. Great for soldering coax connectors outside.



8200CT Solder Gun

HRO Price $49.95

100 / 140 W, 110 V. Ready to solder in 6 seconds. Finger tip selection of high / low power. Great for soldering coax connectors.

DUMMY LOADS / BALUNS

Dummy Loads

MFJ



MFJ-250

1 kW Dummy Load, 50-Ohm. Oil filled, low SWR to 400 MHz. Rated 1 kW CW or 2 kW PEP for 10 minutes. One half rating for 20 minutes. 200 Watts CW or 400 Watts PEP continuous. Includes industrial transformer grade oil (no PCB).



MFJ-264

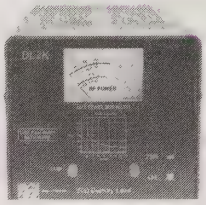
HF/VHF Dry Dummy Load covers up to 650 MHz, usable to 750 MHz. Rated 1.5 kW for ten seconds, 100 Watts continuous. Perforated metal cabinet. SO-239.

MFJ-260C



HF/VHF Dry Load is similar to MFJ-264, but handles 300 Watts for 30 seconds. Has derating curve. SO-239.

Palstar

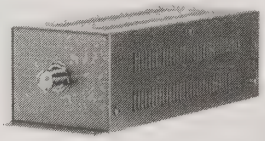


DL2K

The fan-cooled DL2K is capable of handling 2000 Watts for 1.5 minutes – long enough to tune your amp.

- Frequency range DC to 30 MHz.
- Internal Wattmeter and analog metering.
- SO239 coax connector.
- Size: 6" x 5" x 12.5" deep.
- Weight 5 lbs.

DL1500



The **DL1500** is capable of handling 100 Watts "barefoot" power levels for 10 minutes, and 1500 Watts for up to 10 seconds. Air cooled. **HRO Price $189.95**

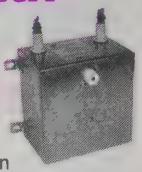
DL150M

The **DL150M** handles up to 1000 watts for up to 1 minute, 600 watts for 5 minutes, and 300 watts 100% duty cycle. It has thermostatically-controlled dual fan cooling, so the fans only run when needed. **HRO Price $499.95**

Baluns

Palstar

B4000 Balun



The B4000 is a 4:1 voltage balun for use with Hi-Z antenna applications and center-fed wire antennas with open wire and twin lead transmission lines. It features a die-cast aluminum case for all weather indoor/outdoor usage. Inside the alunimum case are steatite insulators with a large 3.25" ferrite core with Teflon® sleeved 12 ga. wire and rated up to 4kW plus.

Unadilla

W2AU



Unadilla's W2AU 1:1 balun handle 2000 Watts and matches 50-75 ohms coax to 50-75 ohms balanced. It has 1 to 1 impedance ratio and covers 1.8 to 40 MHz. Beam versions are available with pigtails to connect to driven elements.

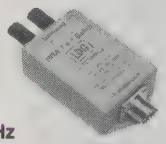
	HRO Prices
W2AU 1/1	$29.95
W2AU 4/1	$29.95
W2AU 1/1 - Beam Version	$30.95
W2AU 4/1 - Beam Version	$30.95

W2DU HF



W2DU Maxi-Baluns have extremely high power capability beccause they contain no ferrite cores to saturate. Even at high SWR levels, the W2DU baluns won't generate harmonic radiation. The internal feed line passes through ferrite beads which prevent RF current from flowing on the coax shield. Also available for VHF. **HRO Price $31.95**

LDG ELECTRONICS



200 Watts 1.8 to 30MHz

		HRO Prices
RBA-4:1	Remote 4:1 Balun	$29.95
RBA-1:1	Remote 11 Balun	$29.95
RU-4:1	Remote 4:1 UNUN	$27.95

RadioWavz

The RadioWavz baluns are designed to handle full legal power with a low SWR.

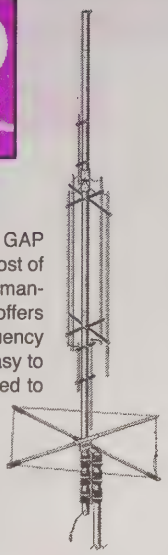


1:1 Air	B11a	24.95
1:1 Ferrite	B11f	34.95
1:1 Isolation	B11i	34.95
1:4 Voltage Air	B14va	25.95
1:4 Voltage Ferrite	B14vf	29.95
1:4 Current Air	B14ca	32.95
1:4 Current Ferrite	B14cf	44.95
1:6 Current Isolation	B16ci	39.95
1:9 Balun Isolation TX	B19tx	39.95

HF / VHF VERTICAL BASE ANTENNAS

GAP ANTENNA PRODUCTS

Titan DX



The Titan is a center fed GAP vertical, that provides a host of benefits in a rugged, yet manageable form. The Titan offers broad, continuous frequency coverage in a no tune, easy to assemble format. Designed to work in a limited space or as the perfect compliment to an antenna farm. NO RADIALS required.

Total continuous coverage under 2:1 on 10m, 12m, 15m, 17m, 20m, 30m, 40m, and 100 kHz on 80m.

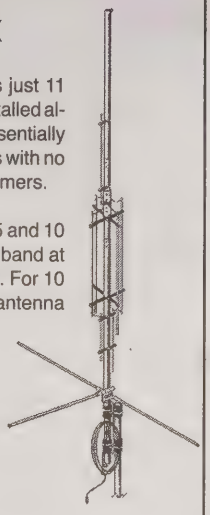
Challenger



The Challenger is capable of operating on eight separate bands from 3.5 MHz to 144 MHz. Use it on 80, 40, 20, 15, 12, 10, 6 and 2 meter bands with over 130 kHz bandwidth on 80 m.

The antenna is designed to be mounted directly in the ground or elevated. A ground mount is provided. The Challenger may be roof mounted. The antenna requires a counter poise of three 25 foot insulated wires.

Eagle DX



The Eagle DX weighs just 11 pounds and can be installed almost anywhere. It is essentially a set of vertical dipoles with no traps, coils or transformers.

It covers 40, 20, 17, 15 and 10 meters with the entire band at a VSWR of 2:1 or less. For 10 m this is 500 kHz. No antenna tuner is required.



Voyager DX

The Voyager DX is manufactured specifically to provide efficient low band operation from the typical backyard without a huge investment in time, money, or space.

It is not another "add a kit" antenna for 160m. GAP technology opens up the low bands. Emphasis was given to 160 m and 80 m when designing the Voyager.

The antenna employs a capacity hat with circular ring to reduce the physical height to 45 feet while maintaining an electrical height of 66 feet. Parallel tuner rods are used in its design. No tuning or matching are required to put the Voyager on the air.

GAP Antennas

Model	Bands	Bandwidth (under 2:1)	Height (ft)	Weight (lbs)	Mount	Counter poise	Gound Area Required	HRO Price*
Challenger	80,40,20, 15,12,10, 6,2m	Entire band except 130kHz 80m	31.5	18	Gound or elevated. Ground Mt supplied	3 at 25'	10' x 12'	CALL
Voyager DX	160,80,40 20m	Entire band except 900kHz 160m	45	30	Ground. Aluminum pivot and guy brackets supplied	3 at 57'	4 guy points 25 ft from base	CALL
Eagle DX	40,20,17, 15,12,10m	Entire band except 500 kHz 10m	21	11	Most anywhere. Pole mount supplied for 1.25 ant Mast	3 rigid at 80" long		CALL
Titan DX	80,40,30, 20,17,15, 12, 10m	Entire band except 100 kHz 80m	25	25	Most anywhere. Pole mount supplied for 1.25 ant Mast	4rigid at 80" long		CALL

* All GAP antennas shipped PLUS freight

Ultra-Compact Vertical

Maldol

HVU-8
8 Bands on HF / 2m / 70 cm

HRO Price $339.95

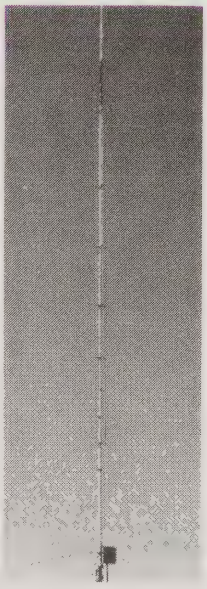


At only half the height and weight of traditional HF vertical antennas, model HVU-8 includes 2m and 70cm. It is easily configured and installed in confined or restricted spaces such as apartment balconies, or for temporary use. Each HF band and 6m has an independently tuned radiator and radial system while the main antenna mast is tuned for constant operation on 2m / 70 cm.

- HF and 6m: 1/4 wave.
- 2m: 1/2 wave 2.15 dBi gain.
- 70cm: two 5/8 waves in phase, 5.5 dBi gain.
- Impedance: 50 Ohm.
- Max power HF: 200 W SSB; 6m-70 cm: 150 W FM.
- Height: 8 ft 6 inches.
- Weight: 5 lbs 7 ozs.

HF + 6m Verticals

hy-gain



AV-640

Uses quarter wave stubs on 6, 10, 12, and 17 meters and efficient end loading coil and capacity hats on 15, 20, 30, and 40 meters. No radials. No traps. No ground. No tuning. Handles 1500 Watts. Sleek, low profile. Small area required for mounting. Automatic band-switching, single coax cable feed, each band is individually tunable, wide VSWR bandwidth.

AV-620

Covers all bands 6 through 20 Meters.

Hygain also sells a large assortment of multi-band beams, wire antennas, and other verticals. Ask about baluns, aluminum tubing, and parts.

HF LONG WIRE ANTENNAS

HF OCF Antennas

BUCKMASTER

HF Dipole Antennas

Off-Center-Fed (OCF)



World-wide DX, multi-band, no tuner required.

4-Band: 40, 20, 10, & 6 meters.
68 feet (23+45) long.

DX-OCF-40	300W	**HRO Price $214.95**
DX-OCF-HP40	3kW	**HRO Price $317.95**

7-Band: 75 / 80, 40, 20, 17, 12, 10, 6 meters.
135 feet (45+90) long.

DX-OCF	300W	**HRO Price $223.95**
DX-OCF-HP	3kW	**HRO Price $322.95**

8-Band: 160, 75/80, 40, 20, 17, 12, 10, 6 meters.
270 feet (90+180) long.

DX-OCF-160	300W	**HRO Price $299.95**
DX-OCF-HP160	3kW	**HRO Price $389.95**

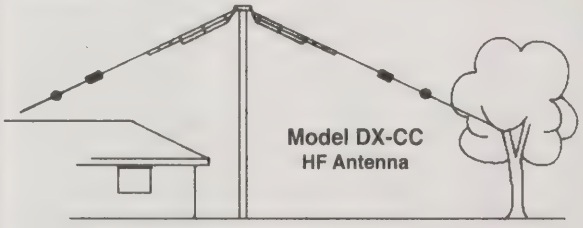
Limited Space Antennas

ALPHA DELTA

All of Alpha Delta's limited space antennas use stainless steel hardware where required, are fully assembled, and are manufacturered to withstand severe weather. SO-239 connectors.

Model DX-B is a single wire, high performance quarter-wave sloper antenna for 160, 80, 40 & 30 meters. For limited space, the antenna requires only 60 feet for installation. Use with a wide range antenna tuner. Pre-assembled and pre-tuned. Has stainless steel hardware, 12 gauge insulated solid copper wire and the Alpha Delta "ISO-RES" RF choke coils, 50 ohm coax feed. Full legal power. **HRO Price $109.95**

Model DX-A: A quarter wave twin sloper for 160-80-40 meters. One leg is 67' and the other 55'. Installs as an inverted-V. **HRO Price $99.95**



Model DX-CC: A no trap 80-40-20-15-10 meter dipole. 82' long. **HRO Price $159.95**

Model DX-DD: A no trap 80-40 meter dipole. 82' long. **HRO Price $129.95**

Model DX-EE: A no trap 40-20-15-10 meter dipole. Only 40' long. **HRO Price $139.95**

RadioWavz

Product	Model	HRO Price
Dipoles with 1:1 Balun		
160 m	160DP11	79.95
80 m	80DP11	69.95
40 m	40DP11	47.95
20 m	20DP1	39.95
10 m	10DP11	39.95
DX Loop		
80 m	80LP	119.95
40 m	40LP	79.95
20 m	20LP	59.95
6 m	6LP	45.95
2 m	2LP	45.95
DX (OCF) Windom		
DX 40	DX40	59.95
DX 80	DX80	79.95
DX 160	DX160	119.95
G5RV Line (w / heavy duty ladder line)		
G5RV Jr.		$32.95
G5RV Lite-E		69.95
G5RV-E		64.95
G5RV MAX-E		94.95

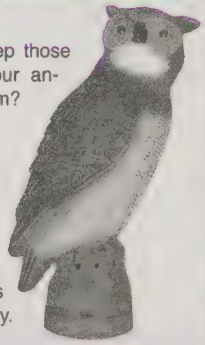


Double Bazooka		
160 m	160DBZ	129.95
80 m	80DBZ	95.95
75 m	75DBZ	75.95
60 m	60DBZ	70.95
40 m	40DBZ	59.95
20 m	20DBZ	39.95
17 m	17DBZ	37.95
15 m	15DBZ	37.95
12 m	12DBZ	39.95
10 m	10DBZ	37.95
6 m	6 DBZ	35.95
2 m	2DBZ	35.95

The Owl

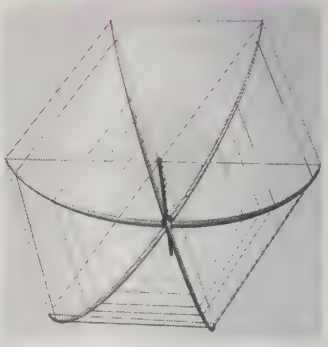
Want to keep those birds off your antenna system?

The OWL is just the trick. Mount this fella on top of your tower and the birds will stay away.



HRO Price $19.95

Hex Beams



Hex Beam
Covers HF & 6 M

HRO Price – Call

Sentinel Series Features

- Single coax feed (except for the Barrett and Broadband options).
- Low SWR.
- No tuning required, just plug and play.
- Improved broad band response over original hex beam design.
- Performs well at lower heights.
- Handles full legal limit of power.
- Small physical foot print.
- Light enough for a push up mast.
- Symmetrical shape withstands wind better.

Sentinel Models

Sentinel Barrett Series Hex Beam
160-10 m or 40-6 m.

Sentinel Hex Beam 6 bands
10, 12, 15, 17, 20, and 40 m.

Sentinel Hex Beam 10 m & 6 m
Dual band.

Sentinel Hex Beam 4-band
Covers 20, 15, 10, and 6 m .

Sentinel Hex Beam 20 m
Single band antenna.

Sentinel Hex Beam 10 m
Single band antenna.

Sentinel Hex Beam 6 m
Single band antenna.

Find updates @ http://www.hamradio.com

PORTABLE & SPECIALTY ANTENNAS

10 m - 40 m Portable

AlexLoop



Walkham

Small magnetic loop antenna covers 6.95 MHz to 29.7 MHz transmit and receive. It breaks down into 3 small 15-inch pieces, and fits into a small cushioned bag. The antenna assembly includes: the 7 to 30 MHz tuner, the middle joint piece, and the exciter loop.The antenna can be quickly mounted and disassembled for easy carrying. **HRO Price $399.95**

Portable HF Antenna

CHAMELEON™ ANTENNA



CHA EMCOMM II

HRO Price $114.95

This antenna for backup emergency HF system or permanent installation has an integral broadband impedance matching network (transformer 5:1) allowing broadband antenna tuning. It is the perfect backup antenna for apartments, condominiums, homeowners associations, deed restrictions, and CCRs (Covenants, Conditions and Restrictions), ARES, RACES, MARS, EMCOMM, NVIS, first responders, and especially for emergency preparedness.

The unit is totally waterproof. The antenna is 60' long and covers 6 m to 160 m. An external tuner is required. It weighs 1 pound and has a PL-259 RF connection.

The antenna will perform very well as a sloper or an inverted "V" configuration. For a NVIS configuration (40 m – 80 m) the antenna must be installed horizontally with the ground and elevated between 9' and 12' high. It does not require any ground-plane but will perform better with one. A ground terminal is available for that purpose.

YAESU The radio

HF Dipole Antenna
YA-30

This 83-foot broadband dipole provides optimum performance over 1.8-30 MHz. Usual requirements for an antenna tuner between the rig and antenna are eliminated by the unique broadband design. Handles 150 Watts at an SWR of less than 1.9:1 on the amateur bands. Preassembled and pretuned. Can be installed as a horizontal flat-top, inverted-V, or sloper. 100 feet of RG-8X with PL-259 included. **HRO Price CALL**

HF / VHF / UHF Mobile Antenna >
ATAS-120A



The ATAS-120A provides HF / VHF / UHF coverage with automatic motorized tuning. Control radiator length from the transceiver for best SWR. Compatible with Yaesu's FT-100, FT-847, FT-857, and FT-897. **HRO Price CALL**

HF / VHF / UHF Portable Field Antenna
ATAS-25

The ATAS-25 has radiating elements covering amateur bands 10-40 m, 6 m, 2 m, and 70 cm. Mounts to a standard camera tripod (not included). Uses a manual tuning system. Dual frequency operation possible with a duplexer (not included). Antenna collapses to less than two feet to carry; expands to 7.2 foot maximum height. This is an ideal system to use with the FT-817, FT-897, and FT-857 transceivers. Weight is 2.05 pounds. **HRO Price CALL**

Kilowatt Monitor

Kill-A-Watt™



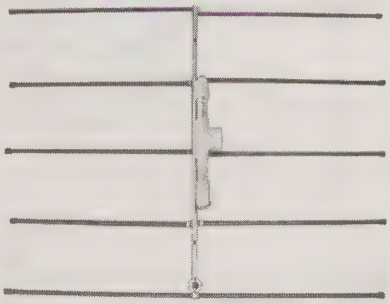
Connect equipment into the Kill-A-Watt™ to assess its efficiency. A large LCD display counts consumption by the kilowatt hour just like utility companies. You can figure out your electrical expenses by the hour, day, week month, even an entire year. Monitor the quality of your power by displaying voltage, line frequency, and power factor.

Specifications: Operating Voltage: 115VAC. Maximum Voltage: 125 VAC. Maximum Current: 15A. Maximum Power: 1875 VA. **HRO Price $24.95**

Log Periodic

ELK ANTENNAS

ELK
2 m
440 MHz
Dual Band



The Elk 2 m / 440 is a dual band log periodic antenna for 144-148 MHz and 430-450 MHz. The antenna features 6.6 dBd gain on 144 MHz and 7 dBd on 440 MHz. The SWR is 1:1 in these frequency ranges. The antenna handles 200 Watts on 144 MHz and 100 Watts on 440 MHz. The boom length is 24 inches and the antenna weighs only 1.4 pounds.

The ELK 2 m / 440 assembles quickly with color coded threaded elements that screw into the color coded boom. Access two bands with just one coax fitting. No duplexer is required. All of the band may be used without retuning. Easily change the polarity of the antenna by twisting the mounting assembly. **HRO Price $CALL**

Wireless Antennas

NCG

Wi-Fi / 802.11b Wireless LAN Antennas

NGC offers a wide selection of directional and omnidirectional antennas for Amateur Television, the ISM band, LAN / WAN, data links and wireless internet.

GP-24R

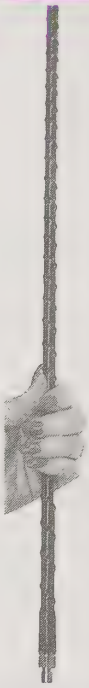
ATV/ISM band: 2400-2500 MHz.
Omnidirectional gain: 15.4 dBi.
Height: 5' 10".
Connector: N-Type.
HRO Price: $149.95

GP-24-3

Same as GP-24 but omnidirectional with 3 degree electrical downtilt.
HRO Price: $159.95



HF Antenna Whips



MFJ-16XXT

HF antenna whips handle 250 Watts PEP. Whips are about 7 feet fully extended and collapse to about 4 feet for easy storage. Simply screws into any 3/8 x 24 female mount for quick band-changing.

Each whip is ruggedly constructed. Heavy duty 4-foot, 3/8" diameter fiberglass rods, nearly indestructible eighth-inch diameter PH-17-7 stainless steel whips, and chrome-plated brass fittings will give you years of service.

Sleek low-profile construction has low wind loading and the semi-rigid fiberglass eliminates the need for springs or guys. Black anti-static jacket protects the loading coil and blends with any vehicle. Stainless steel whips are adjustable for lowest SWR. Push the whips down to park in the garage or fully extend for maximum efficiency during mobile operation. Includes allen wrench and complete tuning and matching instructions.

MFJ-1675T - 75 M
MFJ-1660T - 60 M
MFJ-1640T - 40 M
MFJ-1630T - 30 M
MFJ-1620T - 20 M
MFJ-1617T - 17 M
MFJ-1615T - 15 M
MFJ-1612T - 12 M
MFJ-1610T - 10 M
MFJ-1606T - 6 M

Telescopic Whips



MFJ-197X

MFJ's premium stainless steel telescopic whips are the perfect choice for building collapsible multi-band dipoles, mobiles, portable and base antennas. They are handy for traveling, mini DXpeditions, vacations, etc. Use them to replace your current automatic screwdriver whip for a more highly efficient fixed mobile operation. Rigidly collared at the base, stronger than plated brass, and impervious to rust and corrosion, they stand up to the forces of nature and the rigors of portable operation where others might fail.

Model	Number Sections	Height Feet	Collapsed Inches
MFJ-1979	10	17	27
MFJ-1977	7	12	26
MFJ-1976	7	10	20
MFJ-1974	5	8	24
MFJ-1972	3	4.5	22

Base Antennas



80 – 2 m

MFJ-1798

Ten band halfwave vertical antenna. Covers 10 bands: 75 / 80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 meters. No ground radials or ground needed because of the effective counterpoise that is 12 feet across. Mount from ground level to roof top. The feedline is isolated from the antenna using MFJ's AirCore™ balun. Achieves full-sized performance with full-size radiators for 2-20 meters and high efficiency end-loading for 30, 40 and 75 / 80 meters. UPS Shippable.

40 – 6 m Vertical

MFJ-1796

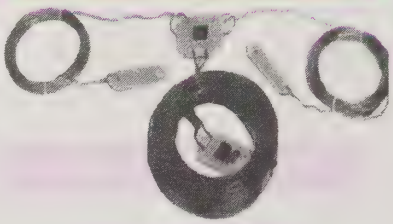
6 band vertical covers 40 through 6 meters. 12 feet tall with tiny 24-inch footprint. Mounts anywhere, handles 1500 Watts PEP.

40 – 2 m Mini-dipole

MFJ-1775

1/2 Wave, 6-band rotatable mini-dipole. Just 14 feet wide, can be turned by a small TV-type rotator. Covers 40 through 2 meters, handles 1500 Watts.

Longwire Antennas



160 – 10 m G5RV

MFJ-1778

All-band G5RV antenna. 102 feet long, 32.5 foot ladder line ending in SO-239 connector for coax feedline. 1500 Watts. 80-10 m, 160 meters with tuner/ ground.

40 – 10 m G5RV Junior

MFJ-1778M

G5RV Junior. Half-size, 52 feet. Covers 40-10 meters.

Call toll-free for Quotes on MFJ Products

On-Glass Dual Band

MFJ-1734

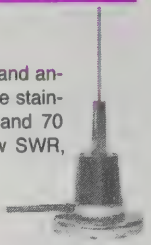
Dual band glass mount 144 / 70 cm antenna gives 2.6 dB gain on 2 meters and 6.3 dB gain on 70 cm. Low SWR on both bands.

MFJ-1738

2 meter glass-mount antenna handles 50 Watts with 2.6 dB gain, low SWR over entire 2 meter band.

VHF / UHF Mobile

MFJ-1724B



Mobile magnetic mount dual band antenna gives you a quarter wave stainless steel whip for 2 meters and 70 cm, coax, and connector. Low SWR, 200 Watts.

MFJ-1729

Mobile Magnetic Mount super gain dual band antenna. Get a whopping 2.6 dB gain on 2 meters and 6.3 dB gain on 70 cm.

MFJ-1432

Dual band, 62.5" RuffRider™ hyper gain mobile antenna. 7.6 dB gain on 70 cm, 5 dB gain on 2 m. Requires tri-magnet mount, not included.

2 m + 6 m Mobile

MFJ-1728B

Mobile magnetic mount 5/8 wave 2 meter and 1/4 wave 6 meter antenna. Low SWR, 300 Watts.

Hi-Q Loop Antennas



MFJ-1786

Tiny 36" diameter loop antenna operates 10-30 MHz continuously – including WARC bands! Ideal for apartments, small lots, motor homes, attics, etc. Handles 150 watts. MFJ's included remote control has Auto Band Selection™. Auto tunes to desired band, then beeps to let you know. No control cable needed. Fast / slow tune buttons, built-in two range cross-needle SWR / Wattmeter. All welded construction, large 1.050" diameter round radiator gives you highest possible efficiency. Heavy duty ABS plastic housing has ultraviolet protection.

MFJ-1788 Like MFJ-1786, 40 - 15 Meters.

Telescopic Masts



These portable, temporary telescopic fiberglass masts extend to the sky! Just pull out each section and twist to lock. Select from five models, 20 to 43 feet. Each mast collapses to an acceptable height for true portability.

These high-strength fiberglass masts are super lightweight – the largest weighs just 7.7 lbs. Twist and Lock sections allow quick pull-up and take-down. Use them while traveling, camping – at hotels, hamfests, field day, DX-peditions.

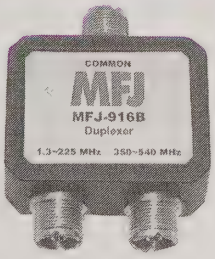
MFJ-1917

The largest mast can be used for a full-time permanent wire installation or small, lightweight beam or vertical. Put up a full size inverted Vee, dipole or vertical antenna in minutes and get the height you need to QSO with anyone, anywhere. Use multiple telescopic masts to construct other types of antennas like loops, quads, rotatable dipoles even beams. The ideas are endless!

MFJ-1910 33 ft., light duty w/top tie ring.
MFJ-1911 20 ft., light duty w/top tie ring.
MFJ-1913 28 ft., lightweight w/top tie ring.
MFJ-1915 25 ft., for heavy duty use.
MFJ-1916 34 ft., for heavy duty use.
MFJ-1917 43 ft., heavy duty w/top tie ring.

Duplexers / Triplexers

MFJ-916B



Use HF or 2-meter / 440 MHz antennas with separate HF or 2-meter / 440 MHz rigs without a built-in duplexer. Low loss SO-239s, 50 Ohm ports, 200 Watts PEP.

MFJ-916BN with N type connector.

MFJ-916BC with coax pigtails terminated with PL-259 connectors.

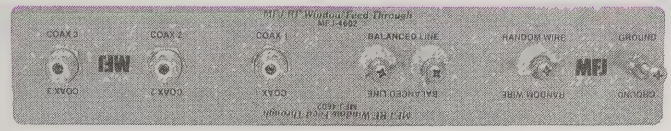
MFJ-4926S Triplexer for 1.6-60, 110-170 and 350-570 MHz. SO-239 connectors.

MFJ-4926C Triplexer for 1.6-60, 110-170

and 350-570 MHz. Pigtail PL-259 connectors.

MFJ-4936S Triplexer for 1.6-150, 220-225 and 400-550 MHz. SO-239 connectors.

Window Feedthrough



Weather-proof antenna feedthrough panels mount in your window sill to let you bring all your antenna connections into your hamshack without drilling holes through walls. Simply place in window sill and close window.

One cut customizes it for any window up to 48 inches. Use horizontally or vertically. Real Western Red Cedar wood is naturally resistant to rot, decay and insects – lasts longer, maintenance-free. Pitch and resin free for a wide range of beautiful finishes or leave it in its naturally beautiful raw finish. Edges are sealed by weather-stripping to insulate against all weather conditions.

All are 3/4 D x 3-1/2 H x 48 W inches, except for MFJ-4605, which is 3/4 D x 7 H x 48 W. Inside / outside stainless steel plates bond all coax shields together to ground connection. Stainless steel ground post brings outside ground connection inside.

MFJ-4602

Three SO-239 Teflon® coax connectors let you feed HF / VHF / UHF antennas. High voltage ceramic feed-thru insulators bring 450 / 300 Ohm balanced lines into your hamshack. Ceramic feed-thru insulator for longwire or random wire. Stainless steel ground post.

MFJ-4603

Four 50 Ohm Teflon® SO-239 coax connectors let you feed HF / VHF / UHF antennas at full legal power limit.

A 50 Ohm Teflon(R) coax N-connector lets you use any antenna up to 11 GHz, including 450 MHz, UHF, satellite, moon bounce and 2.4 / 5.8 GHz Wi-Fi antennas.

A 75 Ohm, 1 GHz F-connector makes it easy to bring in television, satellite, HD, cable TV and FM radio signals.

A pair of high-voltage ceramic feedthru insulators lets you bring in 450 / 300 Ohm balanced lines directly to your antenna tuner.

- A random / longwire antenna ceramic feedthru insulator.
- 5-way binding posts let you supply 50 volts / 15 amps DC / AC power to your outside antenna tuners / relays / switches.
- Stainless ground post brings in ground connection, bonds inside / outside stainless steel panels together and drains away static charges.
- MFJ's exclusive Adaptive Cable Feedthru™ lets you bring in rotator / antenna switch cable, etc. without removing connectors (up to 1-1/4 X 1-5/8 inches). Adapts to virtually any cable size. Seals out rain, snow, adverse weather.

MFJ-4601

Has six high quality Teflon® SO-239 connectors for HF / VHF / UHF coax-fed antennas and a stainless steel ground post. Handles full 1500 Watt legal limit.

MFJ-4601N

Like MFJ-4601, but has N-type connectors.

MFJ-4600

Has four sets of ceramic feedthrough insulators and two SO-239 connectors.

MFJ-4604

Has five adaptive cable feedthrus™ – two for connectors up to 1-1/4 x 1-5/8 inches and three for UHF / N size coax connectors. Adapts to virtually all cables used in ham radio. Seals out weather.

MFJ-4605

Combines MFJ-4603 and MFJ- 4604! Gives every connection you'll ever need and more -- without drilling holes in wall!

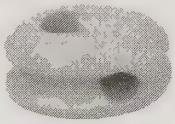
Antenna Insulators



MFJ-16C06

6-pack of glazed ceramic center / end insulators are extra strong – will not break with long antennas and will not arc-over or melt even under full legal power. Molded ridges give extra-long path to prevent high-voltage breakdown. Smooth 5/16" wire holes prevent wire damage. Center or end insulator for dipoles, doublets, G5RVs, guy wires, vees, etc.

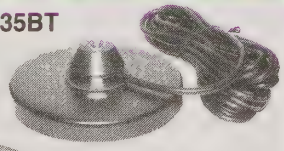
MFJ-16A06



Glazed ceramic egg insulator, has 7/16" holes. 9/64" diameter by 2-1/8" length. High power.

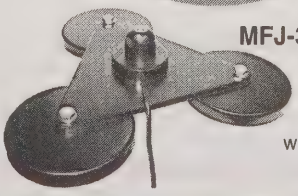
HF Magnet Mounts

MFJ-335BT



5" magnet mount with 17' coax.

MFJ-336T



Tri-magnet HF mount with 17' coax.

Cushcraft HF Antennas

Model	Bands	Ele	Fwd Gain dBi	Max F/B dB	Min SWR	Boom Length		Boom Diameter		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight	
						FT	M	IN	CM	FT	M	FT	M	IN	CM	SQFT	SQMT	LBS	KG
MA-5B	10 12 15 17 20 meters	3	5.3 10m 1.0 12 m 4.8 15m 1.0 17m 3.6 20m	22	1.2:1	7.3	2.2	1.5	3.8	17.5	5.3	8.8	2.7	1 1/2	3.8	3.22	0.3	26.5	12
MA-5VA	10,12,15,17,20 m	1	1-2		1.2:1					14.7	4.48							6.5	2.95
MA-6VA	6, 10,12,15,17,20 m	1	1-2		1.2:1					14.7	4.48							6.5	2.95
R6000	20 - 10 + 6 meters	1	3		<1.2:1					19	8.7			1 3/4	4.4	1.5	0.14	12.5	5.6
R8	40 30 20 17 15 12 10 6m	1	3		<1.3:1					28	7.3							23	10.5
A3S	20 15 10 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	27.8	8.5	15.5	4.7	2	5.1	4.4	0.41	30	13.6
A743 Kit	40m for A3				<1.2:1					35	10.7	15.5	4.7	2	5.1	0.06	0.06	7	3.2
A3WS	17 12 meters	3	8	25	<1.2:1	14	4.3	1.5	3.8	25	7.6	14.4	4.4	2	5.1	4.1	0.38	26.5	12
A103 Kit	30m for A3WS				<1.2:1					32	9.8	14.4	4.4	2	5.1	0.04	0.04	6	2.7
A4S	20 15 10 meters	4	8.9	25	<1.2:1	18	5.5	2	5.1	32	9.8	18.4	5.6	2	5.1	5.5	0.51	38	17.2
A744 Kit	40m for A4S				<1.2:1					35	10.7	18.4	5.6	2	5.1	0.3	0.03	7.5	3.4
TEN-3	10 meters	3	8	25	<1.2:1	8	2.4	1.4	3.5	18	5.5	9.8	3	2	5.1	2	0.19	10.5	4.8
XM240	40 meters	2	6	25	1.1:1	22	6.7	2.5	6.3	43	13.1	24.3	7.4	2.5	6.35	5.5	0.51	59	26.8
D3	20 15 10 meters	1			<1.2:1					26	7.9	4	1.2	2	5.1	0.9	0.08	11	5
D3W	17 12 meters	1			<1.2:1					34	10.4	5	1.5	2	5.1	0.9	0.08	13	5.9
D4	40 20 15 10 meters	1			<1.2:1					36	11	5.5	1.7	2	5.1	1.3	0.12	15.5	7
D40	40 meters	1			<1.2:1					42	12.8	6.5	2	2	5.1	1.7	0.16	15	6.8
AR-10	10 meters	1	3		<1.2:1					17.6	5.4			1 1/4	3.2	1 2/3	0.16	5	2.3

Due to rapidly increasing raw material and transportation costs, call for availability and pricing.

Cushcraft VHF / UHF Antennas

Model	Frequency Coverage	Ele	FWD Gain dBi	Max F/B dB	Conn	Polarization		Boom Length		Longest Ele(Ht)		Turning Radius		Max Mast Dia		Wind Surf Area		Shipping Weight		HRO Price
						HORZ	VERT	FT	M	FT	M	FT	M	IN	CM	SQFT	SQMT	LBS	KG	
A13B2	144-148	13	15.8	26	U	Y	Y	15	4.6	3.4	1	8.9	2.7	2	5.1	1.8	0.17	9.5	4.3	$239.95
A17B2	144-145	17	18	26	N	Y	N	31	9.4	3.4	1	17.3	5.3	2	5.1	3.9	0.36	18	8.2	$349.95
224WB	222-225	4	10.2	24	U	Y	Y	3	0.09	2.2	0.7	3	0.9	2	5.1	0.23	0.02	2.5	1.1	$99.95
A50-3S	50-54	3	8	20	U	Y	N	6	1.8	9.8	3	6	1.8	2	5.1	1.8	0.17	8.5	3.9	$139.95
A50-5S	50-54	5	10.5	24	U	Y	N	12	3.7	9.8	3	7.5	2.3	2	5.1	2.7	0.25	13	5.9	$189.95
A50-6S	50-54	6	11.6	26	U	Y	N	20	6.1	9.8	3	11	3.4	2	5.1	4.5	0.42	22	10	$389.95
A148-3S	144-148	3	7.8	25	U	Y	Y	2.8	0.9	3.3	1	2.8	0.9	2	5.1	0.27	0.03	3	1.4	$66.95
A148-10S	144-148	10	13.2	24	U	Y	Y	12	3.7	3.3	1	6	1.8	2	5.1	1.2	0.11	6	2.7	$129.95
A148-20T	144-148	20	13	20	U	Y	Y	10.8	3.3	3.3	1	6.8	2.1	1.5	3.8	1.4	0.13	7.5	3.4	$204.95
A449-6S	440-450	6	10.5	18	U	Y	Y	2.9	0.09	1.1	0.3	2.9	0.9	2	5.1	0.3	0.03	2.5	1.1	$72.95
A430-11S	430-440	11		20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$99.95
A449-11S	440-450	11	13.2	20	U	Y	Y	4.2	1.3	1.1	0.3	2.8	0.9	2	5.1	0.39	0.04	3.5	1.6	$109.95
AR270	144-148	1	3		U		Y			3.75	1.13			2	5.1	0.27	0.03	2	0.9	$129.95
	430-450	1	5.5		U		Y													
AR270B	144-148	1	5.5		U		Y			7.7	2.3			2	5.1	0.47	0.044	2.4	1.09	$179.95
	430-450	1	7.5		U		Y													
A270-6S	144-148	3	7.8	20	U	Y	Y	2.8	0.09	3.4	1	2.8	0.9	2	5.1	0.3	0.03	3.5	1.6	$119.95
	430-450	3	7.8	18	U															
A270-10S	144-148	5	10	20	U	Y	Y	6.2	1.9	3.4	1	6.2	1.9	2	5.1	0.73	0.07	5	2.3	$159.95
	440-450	5	10	18	U															
A6270-13S	6m,2m,70cm	5	8 6m 10 2m 10 70cm	20	U	Y	Y	8.8	2.56	9.7	3	6.16	1.87	2	5.1	2.52	0.23	9.5	4.3	$279.95
AR-6	50-54		3		U	N	Y			10.1	3.1			1.25	3.2	0.37	0.03	4	1.8	$99.95
AR-2	135-160		3		U	N	Y			3.9	1.2			1.25	3.2	0.21	0.02	2	0.9	$64.95
AR-450	440-460		3		U	N	Y			1.4	0.42			0.75	0.88	0.1	0.01	2	0.8	$47.95
ARX-2	137-160				U	N	Y			9.3	2.8			1.25	3.2	0.33	0.03	2.5	1.1	$79.95
ARX-2B	134-164		7		U	N	Y			14	4.3			1.25	3.2	0.5	0.05	3.5	1.6	$99.95
ARX-220B	220-225		7		U	N	Y			9.3	2.8			1.25	3.2	0.3	0.03	3	1.4	$109.95
ARX-450B	435-450		7		U	N	Y			5	1.5			1	1.5	0 2	0 02	2	0.9	$89.95

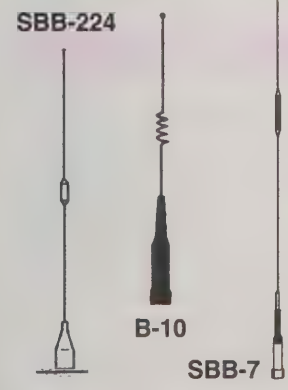
COMET



Dual- & Tri-band VHF / UHF

Comet developed the Super Linear Converter (SLC) to increase actual gain of dual and triband antennas.

- A complete pre-formed phasing coil and phosphorus copper element eliminate additional components and gain loss.
- The SLC is electrically very efficient, providing a low angle of radiation, directly to the horizon.
- Comet sectional antennas use ABS (Transparent to RF) connecting joints for the finest pattern and easiest assembly.



Comet Dual-Band Antennas

MODEL	BANDS	GAIN	MAX PWR Watts	CONN	WGT Lbs' oz"	LEN FT' In"	MAX Wind Speed MPH	HRO Price
Dual Band Base Station Repeater Antennas								
GP-9*	2m/70cm	8.5/11.9	200	SO-239	5'11"	16'6"	90	$204.95
GP-9N*	2m/70cm	8.5/11.9	200	N	5'11"	16'6"	90	$199.95
GP-6	2m/70cm	6.5/9.0	200	SO-239	3'8"	10'5"	90	$149.95
GP-3	2m/70cm	4.5/7.2	200	SO-239	2'12"	5'11"	112	$99.95
GP-1	2m/70cm	3.0/6.0	200	SO-239	2'	4'2"	135	$74.95
Dual Band Mobile Antennas - All Black Anodized								
SBB-7/SBB-7NMO	2m/70cm	4.5/7.0	70	PL/NMO	–	4'7"	–	$79.95
SBB-5/SBB-5NMO	2m/70cm	3.0/5.5	120	PL/NMO	–	3'2"	–	$58.95
SBB-2/SBB-2NMO	2m/70cm	2.15/3.8	60	PL/NMO	–	20"	–	$42.95
B-10M / B10NMO	2m/70cm	–/2.15	50	PL/NMO	–	12"	–	$42.95

* some longer antennas require additional freight

Comet Tri-Band Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	WGT Lbs' oz"	LEN FT' In"	Max Wind Speed MPH	HRO Price
TrBand Base Station Repeater Antennas								
GP-15 *	6m/2m/70cm	3/6.2/8.6	200	SO-239	2'15"	7'11"	90	$169.95
GP-98	2m/70cm/23cm	6.5/9.0/13.5	100	N-Female	3'6"	9'4"	90+	$189.95
CX-333	2m/220/70cm	6.5/7.8/9.0	120	SO-239	3'10"	10'2"	112	$169.95
TriBand Mobile Antennas								
SBB-15	6m/2m/70cm	2.15/4.5/7.2	120	PL-259	–	4'10"	–	$84.95
SBB-14	6m/2m/70cm	0/3.5/6.0	120	PL-259		3'7"		$59.95
SBB-14NMO	6m/2m/70cm	0/3.5/6.1	120	NMO		3'7"		$67.95
SBB-97	2m/70cm/23cm	3.0/6.8/9.6	100	N-Male	-	3'3"	-	$84.95
SBB-224	2m/220/70cm	2.15/3.2/5.5	150	PL-259	–	3'1"	–	$79.95
SBB-224NMO	2m/220/70cm	2.15/3.2/5.5	150	NMO	–	3'1"	–	$78.95
HF Antennas								
UHV-6	40/(20*)/(17*)15/10/6/2m/70cm	HF 0 dBi 2m 2.15 dBi 70cm 5.5 dBi	120 SSB HF 100W FM 6-70cm	PL-259	MAX 1'4"	MAX 6'4"	–	$154.95
*L-14	Opt 20m coil for UHV-6						–	$31.95
*L-18	Opt 17m coil for UHV-6						–	$29.95
*L-3.5	Opt 75/80m coil for UHV-6						–	$34.95
CHA-250B	Ground Plane 3.5-57 MHz		150W SSB HF 125W CW	SO-239	7'11"	23'8"	67.5	$389.95

* For the UHV-6 optional bands.

6 Meter Antenna

MODEL	Description	FREQ	GAIN	F/B	Max Pwr Watts	CONN	SWR	LEN FT'In"	HRO Price
CA-52HB4	4 element beam	50-54 MHz	–	19 bD	400 W PEP	SO-239	<1.5:1	10'6 Boom	$129.95

COMET

2 m and HT Antennas

MODEL	BANDS	GAIN	Max Pwr Watts	CONN	LEN FT'In"	HRO Price
Single Band Antennas						
SBB-25/SBB-25NMO	2m	4.1	100	PL-259/NMO	4'8"	$48.95
HT Antennas						
CH-32 MINI Ant	2m/70cm	–	10	BNC	1.75"	$29.95
MH-510	6m/2m/70cm	0/0/3.2	10	SMA	20.75"	$37.95
MH-511	6m/2m/70cm	–	10	SMA	4.25"	$33.95
HT-224	2m/220/70cm	1.3/1.4/1.8	10	SMA	11"	$47.95
SMA-501 MINI Ant	2m/70cm	–	10	SMA	1.5"	$29.95
SMA-3	2m/70/23cm	1.2/1.7/3.4		SMA	9.75"	$39.95
SMA-24/SMA-24J	2m/70cm	2.15/5.3	20	SMA/Rev SMA	17.5	$24.95
BNC-24	2m/70cm		20	BNC	17.5	$24.95
SMA-503/SMA-503J	2m/70cm	–	10	SMA/Rev SMA	8.5"	$29.95
CH-75	2m/70cm	–/3.2	50	BNC	14.75	$24.95
SH-95	2m/70/23cm	1.5/2/5.5	10	BNC	15"	$29.95

Comet High-Power Duplexers and Triplexers

Zinc-alloy, die-cast, twin cavity, low input loss, high-isolation, and high-power. Modernize your station with Comet high-performance antenna products.

MODEL	PORT	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol dB	Mix Conn	Port Conn	HRO Price
CF-416A (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads PL-259 w/leads	$49.95
CF-416C (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	N-Female	PL-259 w/leads N-Male w/leads	$54.95
CF-4160I (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads N-Male w/o leads	$48.95
CF-4160K (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.1 0.2	60 60	SO-239	PL-259 w/o leads PL-259 w/o leads	$48.95
CF-416B (2m/70cm)	LPF HPF	1.3-150MHz 400-540MHz	450 300	800 500	0.15 0.25	60 60	SO-239	PL-259 w/leads N-Male w/leads	$49.95
CF-706A (2m/70cm)	LPF HPF	1.3-75MHz 75-470MHz	175 175	350 350	0.5 0.5	40 40	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CF-530 (6m/125-470)	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$74.95
CF-530C (6m/125-470)*	LPF HPF	1.3-90MHz 125-470MHz	350 350	600 600	0.2 0.2	45 45	PL-259	SO-239 w/o leads SO-239 w/o leads	$74.95
CF-360A (10m/6m)	LPF HPF	1.3-30MHz 50-470MHz	350 350	600 600	0.2 0.2	45 45	SO-239	PL-259 w/leads PL-259 w/leads	$69.95
CFX-4310C (2m/70cm/1.2)	LPF BPF HPF	1.6-60MHz 100-150MHz 350-500MHz 840-1.4GHz	600 450 300 100	1KW 800 500 200	0.15 0.25 0.25 0.3	50 50 50 50	N-Female	PL-259 w/o leads PL-259 w/o leads N-Male w/o leads	$79.95
CFX-514 (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.2 0.25 0.3	55 55 55	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$79.95
CFX-514J (6m/2m/70cm)	LPF BPF HPF	1.3-90MHz 130-200MHz 380-500MHz	450 450 300	800 800 500	0.15 0.2 0.25	55 55 55	SO-239	SO-239 w/o leads SO-239 w/o leads SO-239 w/o leads	$79.95
CFX-324A (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/leads PL-259 w/leads PL-259 w/leads	$88.95
CFX-324B (2m/220/70cm)	LPF BPF HPF	1.3-150MHz 200-320MHz 390-500MHz	350 350 350	600 600 600	0.2 0.25 0.3	40 40 40	SO-239	PL-259 w/o leads PL-259 w/o leads PL-259 w/o leads	$85.95

* To run multiple antennas with the Yaesu FT-8900

DUPLEXERS

Dual 2 m / 440 MHz

2 m / 70 cm Mobile Antenna Now with NMO Connector

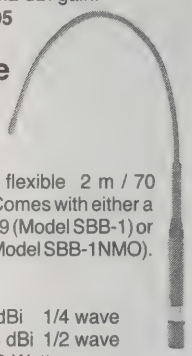
CA-2x4SRNMO

Comet's popular CA-2x4SR broadband mobile antenna now is available with an NMO connector. Black anodized finish. 3.8 / 6.2 dBi gain.

HRO Price $69.95

Flexible Dual-Band

SBB-1



Convenient, very flexible 2 m / 70 cm 17" antenna. Comes with either a gold-plated PL-259 (Model SBB-1) or NMO connector (Model SBB-1NMO).

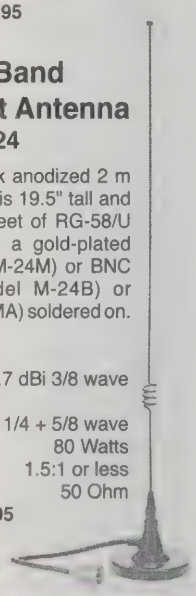
Gain:
146 MHz 1.5 dBi 1/4 wave
446 MHz 2.15 dBi 1/2 wave
Max Power: 60 Watts
VSWR: 1.5:1 or less
HRO Price $42.95

Dual-Band Mag Mount Antenna

M-24

Economical black anodized 2 m / 70 cm antenna is 19.5" tall and comes with 13 feet of RG-58/U coax and either a gold-plated PL-259 (Model M-24M) or BNC connector (Model M-24B) or model M-24S (SMA) soldered on.

Gain 146 MHz: 1.7 dBi 3/8 wave
Gain 446 MHz: 4.1 dBi 1/4 + 5/8 wave
Max Power: 80 Watts
VSWR: 1.5:1 or less
Impedance: 50 Ohm
HRO Price $39.95

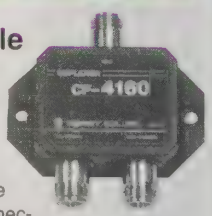


M-24M

Duplexer

All-Female Duplexer

CF-4160N

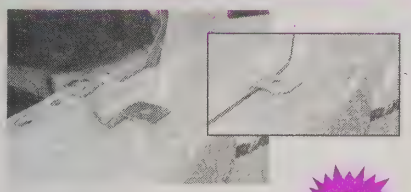


1.3-170 / 350-540 MHz duplexer with three N-female connectors allows the user to attach their own low loss jumpers in the length needed.

HRO Price $58.95

ANTENNA MOUNTS

Mounts



Vehicle Specific Antenna Brackets

NEW!

These stainless-steel no-holes-to-drill mounts use an existing fender bolt under the hood. A 3/4-inch hole accepts a standard NMO type connector or use Comet UHF connector mobile cable assemblies. Specific mounts for most popular trucks and SUVs: Chevrolet, Ford, Dodge, GMC. Call HRO for compatibility. *Pictured: DG2ANTPF Dodge Ram 1500 2009-2014*
HRO Price $24.95



Universal Mount
CP-5M / CP-5NMO

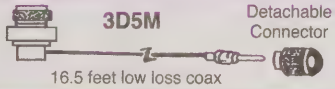
These universal mounts use the heavy-duty RS-730 lip bracket. Each includes 5 meters (16'6") of deluxe 2-step coax and an antenna mount connector: gold-plated PL-259 on coax end with detachable barrel for easy installation. 18-inch lead of mini RG-174 coax for easy entry through the weather seal. Choose the model that has the connector for the antenna you are using. **HRO Price $69.95**

Window Gap Jumper
CTC-50M

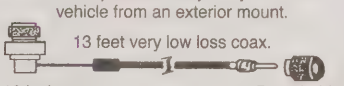


This device crosses the space between window frames. The frequency range is up to 1.3 GHz with SO-239 connectors. Max pwr HF 100 W PEP, VHF 60 W, UHF 40 W, low loss, 50 ohm impedance. **HRO Price $54.95**



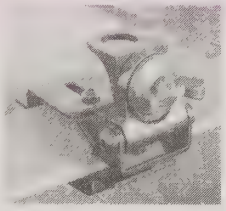


RG-188 provides easy entry into the vehicle from an exterior mount.



Roof Rack Mount
RS-660U

This new roof-rack mount opens wider than the old version – up to 2.5 inches – and supports bigger antennas.
HRO Price $37.95



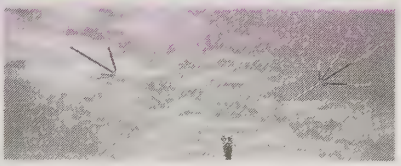
Comet Mobile Mounting Systems

Comet has a wide variety of mobile mounts. Choose the mount and coax cable assembly that best fits your personal needs. All Comet cables have detachable connectors.

MODEL	DESCRIPTION	HRO Price
Mounts with Coax Cable Installed		
CP-5M	Universal multi-angle lip mount w/deluxe cable SO-239/PL-259 Conn	$69.95
CP-5NMO	Same as CP-5M but with NMO/PL-259 Conn	$69.95
HD5-3/8-24	3/8-24 heavy duty lip mount w/ PL-259 connector	$69.95
LD-5M	Light duty lip mount, 16'4" deluxe cable assembly, UHF Conn	$55.95
CM-5M	Standard heavy-duty mag mt with RG-58A/U, coax, UHF conn, max antenna height 4 ft	$24.95
Mounting Brackets Only, No Coax		
RS-840	Heavy duty lip mount, low profile, accepts SO-239 connector	$36.95
RS-730	Heavy duty universal lip mount, accepts SO-239 connector	$32.95
RS-720	Medium duty universal lip mount, accepts SO-239 connector	$29.95
RS-720NMO	Medium duty universal lip mount, accepts NMO connector	$29.95
RS-520	Light duty universal lip mount, accepts SO-239 connector	$29.95
Coax Cable Assemblies		
CK-3M5	17 foot high-quality cable includes 12" RG-188 to avoid water leak/cable damage. UHF Conn	$42.95
CK-3M	Same as CK-3M5 but 9' 9" of deluxe cable assy, UHF Conn	$35.95
CK-5N	13' 6" of deluxe 2-step cable assembly, N- Conn	$49.95
5D4N	13' 6" low loss (2400 MHz) coax cable, N-conn	$34.95
3D4N	13' 6" low loss (1200 MHz) cable assy, N-conn	$32.95
Antenna Connector Adapters		
AD-25M	Turns an SO-239 mount into an NMO mount	$14.95
AD-15M	Turns an NMO mount into an SO-239 mount	$17.95
AD-10N	Turns an NMO mount into an N-female mount	$17.95

HF ANTENNAS

HF Antennas



HF Rotatable Dipole
CHV-5X

The CHV-5X is a 5 band rotatable dipole covering 40 / 20 / 15 / 10 / 6 meters.

- Each band is independenty tunable.
- Turning radius 7 feet. Weighs 5 lb. 14 oz.
- VSWR less than 1.2:1 at center frequency.
- Impedance 50 ohms. Stainless hardware.
- CBL-2500 2.5 kW balun included.
- Max power: 150 Watts SSB 40 / 20 m; 220 Watts SSB 15 / 10 / 6 m.
- SO-239 connector. Requires mast 1- 2.5 inches.

HRO Price $319.95

40 / 20 / 20 / 10 m Rotatable Dipole
H-422

This broad-band, compact, rotatable dipole offers excellent performance even when mounted only 10-15 ft. above ground in a V shape. Heavy duty hardware and 2.5 kW balun are included. During assembly the user chooses any of the three pre-drilled holes to tune the 20 / 15 / 10 m SWR dips to the low- mid- or upper-band ranges simultaneously. 40 m TX bandwidth tunes independently of the other three bands.

- Length "V" shape 24' 5", Horizontal 33' 10".
- VSWR less than 1.5:1 or less after tuning.
- Impedance 50 ohms. Stainless hardware.
- Wind Load 3.01 sq feet.
- Max Power 1000 W, SSB / 500 W FM.
- SO-239 connector.

HRO Price $339.95

40 m - 70 cm Mobile Antenna
UHV-6

Without HF coils attached, the UHV-6 is a tribander for 6 m / 2 m / 70 cm. The top of the element has a threaded socket for the 40 m, 15 m, or 10 m coils (included), making the UHV-6 a quad-band antenna.

- Optional coils for 80 m, 20 m, 17 m.
- Easy to mount and configure.
- Fold-over hinge included.
- GAIN on 2 m: 2.15 dBi; 70 cm: 5.5 dBi.
- Length 48" to approx. 76" maximum.

HRO Price $154.95

Quad Band 10 / 6 / 2 m / 70 cm
UHV-4 ⟶

Developed for the Yaesu FT-8900. The 10 m and 6 m bands tune independently and will tune for SSB and FM. Length approx. 54".
HRO Price $119.95

BASE ANTENNAS

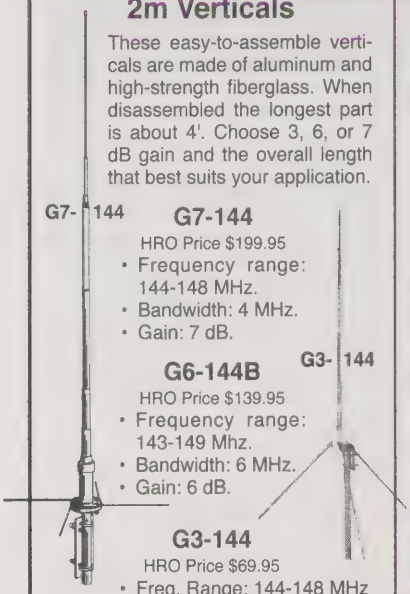
HUSTLER®

Hustler delivers reliability and performance Beyond Your Expectations!

VHF / UHF Base Antennas

2m Verticals

These easy-to-assemble verticals are made of aluminum and high-strength fiberglass. When disassembled the longest part is about 4'. Choose 3, 6, or 7 dB gain and the overall length that best suits your application.



G7-144
HRO Price $199.95
- Frequency range: 144-148 MHz.
- Bandwidth: 4 MHz.
- Gain: 7 dB.

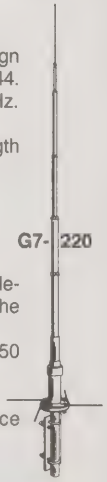
G6-144B
HRO Price $139.95
- Frequency range: 143-149 Mhz.
- Bandwidth: 6 MHz.
- Gain: 6 dB.

G3-144
HRO Price $69.95
- Freq. Range: 144-148 MHz
- Bandwidth: 4 MHz.
- Gain: 3dB.

220 & 440 Verticals

G7-220
HRO Price $185.95
The G7-220 is of similar design and construction as the G7-144.
- Freq. Range: 220-225 MHz.
- Bandwidth: 5 MHz.
- Construction: High strength fiberglass and aluminum.
- Gain: 7 dB.

G6-440
HRO Price $199.95 + frt
The G6-440 is of similar design and construction as the G6-270R.
- Frequency range: 440-450 MHz.
- Bandwidth: 10 MHz.
- Construction: One piece radome.
- Gain: 6 dB.



Repeater Antennas

The Spirit Series

Hustler's omnidirectional, collinear design base station antennas are enclosed in a rugged fiberglass radome that will help minimize pattern variations due to high winds or extreme conditions. Models are available for 144, 220, 440, 900 MHz, and 1.2 GHz. The gain will be unity, 3, 6, 9, or 12 dB depending on the frequency.

Call HRO for quotes on custom frequencies.

2m / 70 cm Dual Band



G6-270R
Dual band
2 m / 70 cm
HRO Price $199.95

The G6-270R is a combination G6-144B and G6-440. It is factory tuned for quick and easy installation.
- Frequency range: 144-148 MHz / 435-445 MHz.
- Gain: 6 dB.
- Bandwidth: 4 MHz – 2 m /10 MHz – 70 cm.
- One piece radome.
- VSWR: < 1.5:1 @ resonance.

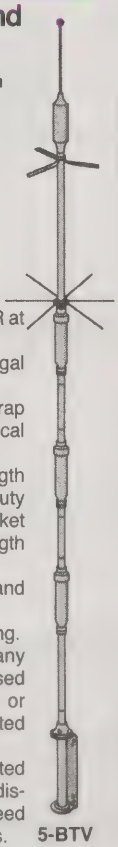
HF Base Antennas

HF Multi-band

6-BTV
10, 15, 20, 30, 40, 75 / 80 m
HRO Price $209.95

5-BTV
10, 15, 20, 40, 75 / 80 m
HRO Price $189.95

4-BTV
10, 15, 20, 40 m
HRO Price $159.95

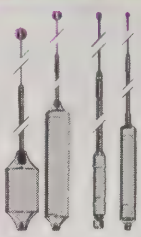


- Broadbanded, low VSWR at band edges.
- Power capability – full legal limit on SSB or CW.
- Solid one-inch fiberglass trap forms for optimum electrical and mechanical stability.
- Heavy wall, high strength aluminum tubing, heavy duty aluminum mounting bracket and low loss, high strength insulators.
- Stainless steel clamps and hardware.
- Easy assembly and tuning.
- Single line feed with any length of 50 ohm coax used as ground mount with or without radials, or elevated mount with radials.
- All the BTV's can be mounted in a piece of PVC and disguised as a flagpole in deed restricted neighborhoods.

Model 30-MTK
30 meter add on kit for the 4 and 5-BTV

HF Resonators

Customize your HF mobile system with Hustler products. Resonators may be used separately on one of the masts or up to three at a time with the VP-1. Add the QD-2, springs and mounts as needed for your installation.





VP-1
Switch bands automatically with any three Hustler HF resonators. Adapts any Hustler mast to tri-band operation automatically. $8.95

Hustler HF Resonators

Model	Type	Band	Power SSB	Bandwidth 2:1 SWR	Weight lbs	HRO Price
RM-10	Standard	10 m	400 W	150-250 KHz	0.41	$18.95
RM-11	Standard	11 m	400 W	150-250 KHz	0.41	$19.95
RM-12	Standard	12 m	400 W	90-120 KHz	0.41	$18.95
RM-15	Standard	15 m	400 W	100-150 KHz	0.42	$18.95
RM-17	Standard	17 m	400 W	120-150 KHz	0.44	$25.95
RM-20	Standard	20 m	400 W	80-100 KHz	0.46	$25.95
RM-30	Standard	30 m	400 W	50-60 KHz	0.84	$28.95
RM-40	Standard	40 m	400 W	40-50 KHz	0.84	$30.95
RM-60	Standard	60 m	400 W			$30.95
RM-75	Standard	75 m	400 W	25-30 KHz	1.05	$32.95
RM-80	Standard	80 m	400 W	25-30 KHz	1.05	$32.95
RM-10-S	Super	10 m	1 kW	250-400 KHz	1	$27.95
RM-15-S	Super	15 m	1 kW	150-200 KHz	1.2	$28.95
RM-20-S	Super	20 m	1 kW	100-150 KHz	1.25	$32.95
RM-40-S	Super	40 m	1 kW	50-80 KHz	1.8	$41.95
RM-75-S	Super	75 m	1 kW	50-60 KHz	2.1	$57.95
RM-80-S	Super	80 m	1 kW	50-60 KHz	2.1	$57.95

Hustler Base Antennas

Model	Band	Gain	Connector	Height ft(m)	HRO
G7-144	2 m	7 dB	N Female	16.3 (4.6)	$199.95
G6-144B	2 m	6 dB	SO-239	9.8 (2.9)	$139.95
G3-144	2 m	3 dB	SO-239	7.5 (2.3)	$ 69.95
G7-220	1.25 m	7 dB	N Female	10.2 (3.0)	$185.95
G6-440	70 cm	6 dB	N Female	7.3 (2.2)	$199.95
G6-270R	2 m / 70 cm	6 dB	N Female	7.6 (2.3)	$199.95
6-BTV	10-30-80 m			24.0 (7.2)	$209.95
5-BTV	10 to 80 m			25.0 (7.5)	$189.95
4-BTV	10-40 m			21.4 (8.4)	$159.95

Hustler VHF / UHF Mobile Antennas

Model	Band	Gain	Power	Mount	HRO
LMC-270	2 m/70 cm	2.4/4	100	NMO	$36.95
MX-270	2 m/70 cm	2.4/4	100	Mag	59.95
LMG-144	2 m	3.4	200	NMO	27.95
BBG-144	2 m	3.4	200	NMO	52.95
BBG-440-5	70 cm	5	200	NMO	59.95
BBGT-144	2 m	3.4	200	Trunk	49.95
MX-220	1.25 m	3.4	200	Mag	37.95
MX-2B	2 m	3.4	200	Mag	42.95
MX-440B	70 cm	3.4	200	Mag	63.95
SF-2	2 m	3.4	100	3/8X24	17.95
SF-220	1.25 m	3.4	100	3/8X24	17.95
RX-2	2 m	3.4	100	Mag	28.95
RX-220	1.25 m	3.4	100	Mag	28.95
RX-440	70 cm	5	100	Mag	29.95
CG-144	2 m	5.2	200	3/8X24	39.95
CG-220	1.25 m	5.2	200	3/8X24	39.95
CGT-144	2 m	5.2	200	Trunk	59.95
CGT-220	1.25 m	5.2	200	Trunk	59.95
THF	140-500	Unity	200	Trunk	25.95
UGM	140-500	Unity	25	Mag	23.95

MOBILE ANTENNAS / MOUNTS

VHF / UHF Mobile Antennas

Dual Band

Dual band models for 144 / 440 MHz give you 2.4 dB / 4 dB gain. The antennas are rated at 100 Watts.



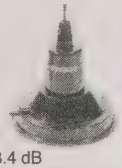
LMC-270
- NMO style coil
- Chrome top
- Coil and whip only

MX-270
- Chrome top.
- NMO style magnetic mount.
- 17 ft RG58/U coax.
- PL-259 connector.

Magnetic Mounts

Models for 144, 220 and 440 MHz are power rated for 200 Watts. Each has an NMO-style coil and a magnetic mount.

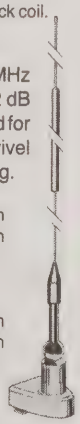
MX-2 144 MHz 3.4 dB gain
MX-220 220 MHz 5.0 dB gain
MX-440 440 MHz 5.0 dB gain
- Chrome top.
- 10 oz magnet.
- 17 ft RG58/U coax.
- PL-259 connector.



MX-2B 144 MHz 3.4 dB
MX-440B 440 MHz 5.0 dB
- Same as above but all black coil.

Collinear

Collinear models for 144 MHz and 220 MHz provide 5.2 dB gain. They are power rated for 200 Watts. All have a swivel ball for vertical positioning.



CG-144 6 MHz bandwidth
CG-220 4 MHz bandwidth
- 3/8"x24 thread
- 5/8 over 1/4wave.

CGT-144 6 MHz bandwidth
CGT-220 4 MHz bandwidth
- Trunk mount base.
- 17 ft RG58/U coax.
- PL-259 connector.

Unity Gain

An antenna to custom trim as needed for VHF or UHF frequencies. Covers 140-500 MHz.

THF
Trunk Lip Mount

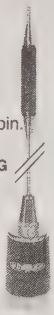


UGM
Magnet Mount



Coil and Whip

Models for 144 or 440 MHz are power rated for 200 Watts. NMO-style coil on each requires an NMO mount.



LMG-144 3.4 dB gain
- Chrome top and bottom.
- Contact- silver plated push pin.

BBG-144 3.4 dB gain

BBG-440-5 5.0 dB gain
- Chrome top, swivel ball and spring.



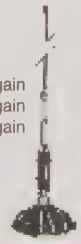
BBGT-144 3.4 dB gain
- Includes trunk mount.
- 17 ft RG58/U coax.
- PL-259 connector.



5/8 Wave

Base-loaded 5/8 wave models for 144 MHz, 220 MHz and 440 MHz are power rated for 100 Watts.

SF-2 144 MHz 3.4 dB gain
SF-220 220 MHz 3.4 dB gain
- 3/8" x 24 thread.
- Mount to any Hustler mount.



RX-2 144 MHz 3.4 dB gain
RX-220 220 MHz 3.4 dB gain
RX-440 440 MHz 5.0 dB gain
- 3 oz magnetic mount.
- 15 ft RG-58/U coax.
- PL-259 connector.

Accessories



MKR-2
Radial Kit

Used to convert RX Series, SF Series, & CG Series to fixed station operation. Contains three radials. Mount can accept any 3/8 x 24 threaded mount. $28.95

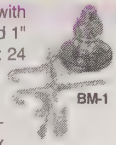


QD-2 Quick Disconnect

Remove antennas easily with a push and twist release. Compression design of 100% stainless steel. 3/8 x 24 threads. $24.95

Mobile Mounts

- **BM-1** Bumper mount with stainless steel strap and 1" diameter ball with 3/8 x 24 threads. $27.95



- **MBM** Powerful 5" diameter magnet with 3/8 x 24 threads. 16' of RG58U coax with PL-259 connector. $24.95



- **SSM-1** Heavy duty ball mount with 4" stainless steel spring with copper braided center conductor to prevent detuning. 180 degree adjustable 2" diameter stainless steel ball. Accepts 3/8 x 24 antennas. $52.95



- **SSM-2** Heavy duty 2" diameter stainless steel ball mount. 180 degree adjustable. Accepts 3/8 x 24 antennas. $32.95
- **SSM-3** Heavy duty stainless steel 4" spring with 3/8 x 24 coupling stud. Copper braided center conductor to prevent detuning. $29.95
- **C-32** Chrome plated 1" ball mount. Accepts 3/8 x 24 antennas. $22.95



- **C-29** Stainless steel 4" spring. Copper braided center conductor to prevent detuning. Accepts 3/8 x 24 antennas. $23.95
- **C-30** Chrome plated 4" spring. Copper braided center conductor to prevent detuning. $21.95



- **RSS-2** Stainless steel 3" spring. Used for mobile antennas between resonator and mast. Copper braided center conductor to prevent detuning. Accepts 3/8 x 24 antennas. $14.95
- **HLM** Trunk lip mount designed for hatch and slanted back vehicles. 180 degree 1" diameter ball, which accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. $27.95



- **HOT** Trunk lip mount with easy off/on with thumb knob. 180 degree 1" diameter ball, which accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. $29.95



- **TLM** Trunk lip mount which accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. $27.95



- **RVM** Recreational vehicle mount with heavy duty bracket. Easy antenna removal or lay down with thumb knob. 1" ball accepts 3/8 x 24 antennas. RG58U coax with PL-259 connector. $23.95









All mounts below are supplied with 17" RG-58U cable.

Model	Description	HRO Price
CHMA	3/8" Hole mount without connector	$16.95
CHMA-B	3/8" Hole mount w/crimp-on BNC	19.95
CHMA-P	3/8" Hole mount w/crimp-on PL-259	15.95
CHMB	3/4" Hole mount without connector	19.95
CHMB-B	3/4" Hole mount w/crimp-on BNC	11.95
CHMB-P	3/4" Hole mount w/crimp-on PL-259	19.95
CMMA	NMO 10 oz mag w/solder-on PL-259	24.95
CTMA	Trunk mount without connector	16.95
CTMA-P	Trunk mount w/crimp-on mini UHF	24.95

Mobile Masts

Fold-Over Masts

MO-1
Mobile mast 54" high for bumper, fender or hitch mounting. Folds over at 15" above base. 3/8 x 24 threaded $36.95

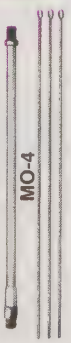
MO-2
Mobile mast 54" high for bumper, fender or hitch mounting. Folds over at 27" above base. 3/8 x 24 threaded $36.95



Solid Masts

MO-3
Mobile mast 54" high for bumper, fender or hitch mounting. Solid aluminum with white vinyl coating. 3/8 x 24 threaded $29.95

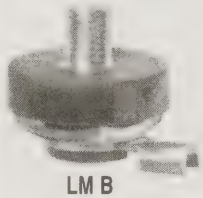
MO-4
Mobile mast 22" high for trunk or deck mounting. Three retuning tip rods included. 3/8 x 24 threaded $24.95



LARSEN®
ANTENNAS

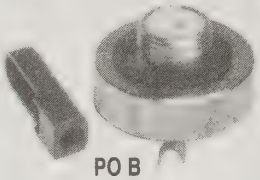
Choosing Your Larsen Mobile Antenna

Choose your antenna configuration based on the frequency, base type (e.g., magnetic mount) and thread type (e.g., NMO). Keep in mind that it is necessary to select a base with the same mounting style as the antenna. Typical bases and styles are shown below.

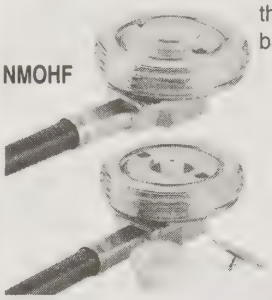

LM B

Thread Types

These are examples of each of the thread types. Select one and then select the base.


PO B

NMOHF



NMOHFTHK



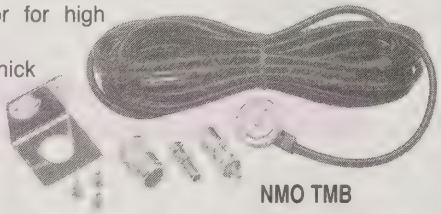

NMO B

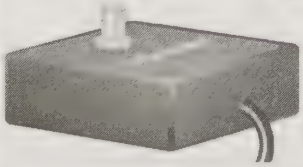
Mount Configurations

In addition to the popular Motorola 3/4" (NMO) mounts shown here, mobile antennas for the Larsen mount (LM) and PO mount (PO) are excellent choices for amateur use.
Each of these mounts comes in one of the thread types.

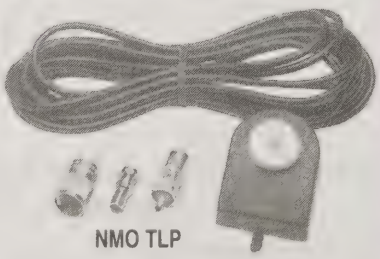
Mounts:
NMO K premium quality rooftop.
NMO MMR mag mount, 80# pull strength.
NMO TLP heavy duty trunk lid.
NMO TMB electropolished trunk gutter bracket.
NMO HF for low or high frequencies (pull center pin and insulator for high frequencies).
NMO HFTHK NMO thick mount (surfaces to 1/2" thick) high or low frequencies.


NMO MMR


NMO TMB



Magnetic Mount
BNC MM BNC
Connectors: BNC on the mag and coax. Coax: RG 58 A/U, 12'


NMO TLP

NMO Series Antennas

Select an Antenna

Once the base and thread type are selected, the final step is to choose the antenna.

All Larsen mobile antennas meet the industry's most demanding specs for electrical efficiency and mechanical durability.

Gain antennas are made of a coil and a whip. Quarter wave antennas are just a whip.

- Colors: Black coil base; chrome or all black whip.
- 1-year No-Nonsense Warranty.™
- Made in USA


A B C D

Scanner Antenna



Tri-Band Antenna NMO-150 / 450 / 800

This is a great antenna for scanner operation. It is NOT tunable for amateur operation.

Frequency....150-165 / .....450-470 / ..... 806-940 MHz
Gain .. 2.14 dBi ± 1 dB
Mount.....NMO
Height .....16.5"

Call a Helpful Ham at HRO for Quotes on Larsen Antennas

A NMO 150 B (2 m)
Frequency:.....144-174 MHz
Gain:.....3 dB
Electrical:..... 5/8 Wave
Height:..... 49"

B NMOQ C
Frequency:.....144-448 MHz
Gain:..... Unity
Electrical:..... 1/4 Wave
Height:..... 22" max.

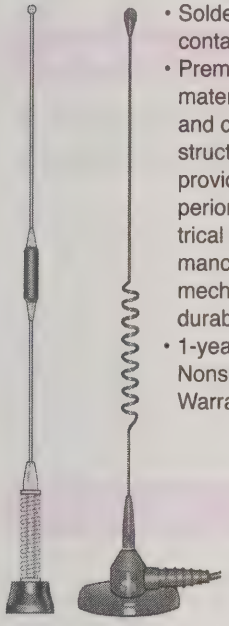
C NMO 220 B (1.25 m)
Frequency:.....220-225 MHz
Gain:.....3 dB
Electrical:..... 5/8 Wave
Height:..... 32"

D NMO 2 / 70
Frequency:.....144-148 MHz
442-448 MHz
Gain:.3.8 dBi VHF5.2 dBi UHF
Electrical:..center loaded 1/2 wave VHF
Collinear UHF
Height:..... 34 3/4"

Dual-Band Antennas

Larsen dual band antennas provide excellent performance on 2 m and 70 cm. Each antenna is factory preset to guarantee optimal performance with no tuning required.

- A range of dual band configurations is available.
- Kulrod copper-plated 17-7 stainless steel rods for greater transmit range.
- Soldered contacts.
- Premium materials and construction provide superior electrical performance and mechanical durability.
- 1-year No-Nonsense Warranty™



E NMO 2 / 70 SH
Frequency: 144-148/440-450 MHz
Gain:.....Unity
Power: .....100 Watts
Type:...VHF: Center load 1/4 wave
..... UHF: Center load 3/4 wave
Base: . NMO UHF base B w/spring
Height:.....17"

F MM 2 / 70 PL
Frequency: 144-148/440-450 MHz
Gain:.....Unity
Power: .....100 Watts
Coax: .. RG58 A/U Dual Shield, 12'
Pull strength:..... 54 lbs.
Type:...VHF: Center load 1/4 wave
..... UHF: Center load 3/4 wave
Base: ..... 3" round magnet mount
Connector:..... PL 259 installed
Weight: ..... 1 lb.
Height:.....17"

On-Glass Antennas

Larsen's advanced design techniques in glass-mount antennas result in superior transmit range plus tremendous mechanical durability. Glass mount performance is nearly identical to rooftop mounts, with no holes to drill. Properly installed on-glass antennas grip for years under demanding conditions, yet are easy to remove and remount.

- Patented low-impedance design is electrically efficient.
- Single-band antennas are precut, 1/2 wave design.
- Transformer outside vehicle.
- Copper plated whips.
- Rated 50 Watts output.
- Less than .5 dB loss through glass vs. rooftop.
- New circuit board technology locks in solid state performance.
- 3M's best on-glass adhesive grip.
- Made in USA with1 year No-Nonsense Warranty™



Dual Band

The KG 2 / 70 is a VHF half-wave and a UHF collinear. It comes with 14 feet of RG-58/U coax.

The antenna installs easily on any flat surface. Remove the whip without tools for car washes or low garages. **HRO Price $119.95**

G KG 2/70-CX-PL (Dual)
Frequency:144-148/442-448 MHz
Gain:.....2.4 dB VHF; 4.5 UHF
Power: ..... 50 Watts
Type:.....1/2 wave / Collinear
Connector:..... PL 259 (loose)
Height: .....32-3/4"



Single Band

H KG 144 PL (2 m)
Frequency:.....144-160 MHz
Gain:.....2.4 dB
Type:..... 1/2 Wave
Connector:..... PL 259 (loose)
Height: .....45"

Rubber Ducks

KulDuckies

KulDuckies have outstanding transmit range with 1.5:1 VSWR. Made of copper and brass radiators, they are scope tuned to precise frequencies. Constructed with soldered connections, plastisol dip process, injection-molded housings and silver plated contacts.

KulDuckies are available in Helical (VHF, UHF), HQ Helical (VHF), Dual Band, and Half Wave.



Dual Band
KD4 2 / 70
Amateur dual band KD antenna, BNC connector. **HRO Price $39.95**

Helical
KD4 FREQ HQ
Helical 1/4 wave 136-222 MHz (specify frequency), 9 1/2" tall, BNC connector. **HRO Price $25.95**

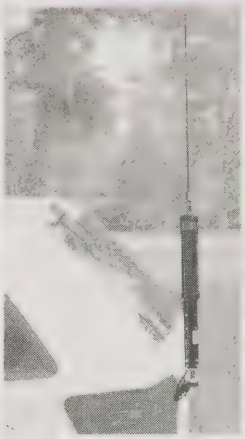
KD4 VHF
VHF helical 136-222 MHz (specify frequency), 8" tall, BNC connector. **HRO Price $19.95**

KD4 UHF
UHF helical 406-512 MHz (specify frequency), 3" tall, BNC connector. **HRO Price $19.95**

Free UPS Brown Shipping in the Continental U.S. on Most Orders Over $100.

Tarheel

Mobile Antennas



< Little Tarheel II

3.5 – 54 MHz

NEW!

Baby Tarheel

10 - 40 M

HRO Prices $CALL

When properly installed on your vehicle the Little Tarheel II will provide continuous coverage from 3.5 to 54 MHz with the supplied whip. Like all of our motorized antennas, this model meets the highest standards but in a smaller size.

It comes with sensors pre-installed so if you decide to add one of the auto controllers (SDC-100 Simple Controller, SDC-102 Programmable Controller, Turbo Tuner, and Tunematic) now or later, everything is ready.

This antenna is for the person who wants to enjoy HF mobile with a more compact antenna. Don't let the small size fool you. The Little Tarheel II mounts higher on the vehicle so you have less ground loss and higher performance. Because of its smaller size, this antenna offers the convenience of a more common type of mount like the Diamond K400 Series, the Comet Series, or similar 3/8" stud type mount.

The Little Tarheel II comes as a package. All you need is a mount and a nice HF radio. Included standard with the antenna is: the whip, 20 feet of plug and play control cable, manual control box, ferrite decoupling core and 3/8 x 24 stud.

The antenna is powder coated in standard colors of black, white, red or silver. It also comes with the tough Lexan™ Weather Shield like its big brothers. This model also uses the commercial 12 volt gear motor.

The antenna has a ONE YEAR NO MATTER WHAT WARRANTY to the original owner.

Specfications:

- Lower mast size: 1 1/2".Weight: 1.9 lbs.
- Lower mast length: 16".
- Whip length: 32".
- Total antenna length, 54 MHz position: 48".
- Total antenna length, 3.5 MHz position: 54".
- Continuous coverage: 3.5 - 54 MHz.
- Power rating: 200 Watts P.E.P.
- Typical SWR: 1.5 or less.

HRO Price $CALL

On-Glass 2 m

LARSEN® ANTENNAS

Single Band 1/2-Wave

Larsen's full selection of on-glass antennas for single-band and dual band use are described on page 97. All single band antennas are precut. A single 1/2 wave design provides 2.4 dB gain.

KG-144-UDPL 2 M HRO Price $84.95

Find more on-glass antennas on page 97.

2 m / 70 cm Mobiles

Maldol

Dual Band Antennas for 2m / 70 cm

Model	MaxPwr	Gain	Lgth	Conn	Finish
EX-107RB	80 W	2.6 / 4.9	29"	PL-259	Black
EX-107RBNMO	80 W	2.6 / 4.9	29"	NMO	Black

LARSEN® ANTENNAS

Dual Band Antenna for 2 m / 70 cm Model NMO 2 / 70 Black

Band	Freq MHz	Gain	Weight oz	HRO Price
2 m	144-148	3.8 dBi	3.9	$69.95
70 cm 5/8 collinear	440-450	5.2 dBi		

Austin

Dual-Band Mobile Antennas

Model	Band	Freq MHz	Gain	Weight oz	HRO Price
500C	2 m	144-148	Unity	6	$45.95
	70 cm	440-450			
Metropolitan	2 m	144-148	Unity	6	$58.95
	1.25 m	220-225			
	70 cm	440-450			

Find more dual-band antennas:

COMET **See Page 91-92**

DIAMOND ANTENNA **See Page 100**

Duplexers

When using a single antenna with mobile radios that have separate 144 MHz and 440 MHz outputs, you must use a duplexer.

Comet has a wide variety of duplexers & triplexers with gold-plated connectors, high isolation and the highest power handling abilities. See page 92.

Diamond has a wide collection of duplexers and triplexers for coupling antennas and transceivers. See page 100.

Antennas for Handhelds

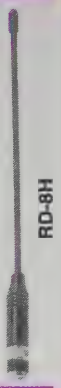
PRYME® Radio Products

Dualband Rubber Duck

RD-8H

144 MHz / 440 MHz, flexible 6.5" tall HT antenna, gold plated BNC connector.

HRO Price $14.95



HF Whip Antenna

SGC

SG-303

Up to 500 Watts

HRO Price $CALL

SGC's 9-foot helically wound whip antenna comes in two sections and provides full HF coverage when used with a Smartuner or other antenna coupler. Covers 1.8-30 MHz, up to 500 W. Available with SGC's mobile swivel ratchet mount, Cat. # 55-75.

VHF / UHF Mobile



Super-M

144 MHz / 220 MHz / 440 MHz with Wide Receive

The typical 1/4 wave antenna used on commercial (taxis, trucking companies, etc.) and government vehicles (ambulances, other city vehicles, school buses, state patrol, etc.) can easily be replaced by the Super-M with tremendous, even life-saving, results. One antenna receives 25 to 1300 MHz and transceives on 140-170 MHz, 200-225 MHz and 400-480 MHz. It handles 200 Watts with a direct feed and is only 19" high.

SUPER-M V/U-NMO comes packaged with an adapter to screw onto a Motorola NMO style mount. **HRO Price: $79.95**

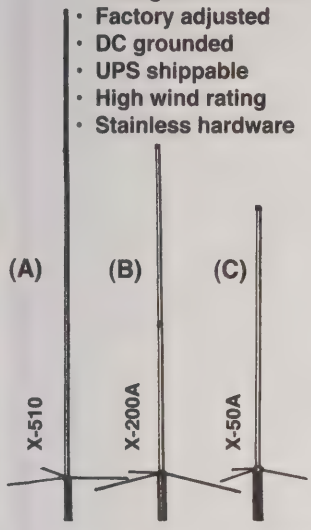
DIAMOND ANTENNA

The Standard by Which All Others are Judged

Diamond Base Antennas

All base antennas grounded for lightning protection. Factory adjusted for American amateur bands; no tuning required.

- Wide-band performance
- Highest gain
- Fiberglass radome
- Factory adjusted
- DC grounded
- UPS shippable
- High wind rating
- Stainless hardware



Model	Bands	Gain, dB	Watts	Con. Type	WT (lbs)	Lth (ft)	MPH (no ice)	Fig	HRO Price
A502HB	6m Yag 2 elem.	6.3 dBi	400PEP	UHF	3.75	2.6			$89.95
A144S5	2 m Yagi 5 elem.	6.0 dBi	100PEP	UHF	1.4	3.1			$59.95
A430S10	70cm Yagi 10 elem.	13 dBi	100PEP	UHF	1.4	3.6			$69.95
A430S15	70cm Yagi 15 elem.	14.8 dBi	100PEP	UHF	2.15	7.4			$89.95
CP-22E	2 m	6.5	200	UHF	3	9	90	B	$54.95
CP-5HS [3]	40/20/15/10/6 m		200v	UHF	6.6	11.75	80		$379.95
CP-62	6m	5.5 dBi	200	UHF	9	22	80		$199.95
CP-610	10m/6m	5.5/3.4 dbi	200	UHF	9	22	80		$229.95
F-22A	2 m	6.7	200	UHF	5	10.5	112	B	$94.95
F-23H	144-174 tunable	7.8	350	UHF	5	15	90	A	$139.95
F-718	70 cm	11.5	250	N	5	15	90	A	$199.95
MG-200	2.4 GHz	11		N	3	6	135	C	$59.95
V2000A [1]	6m / 2m / 70cm	2.1 / 6.2 / 8.4	150	UHF	4	8.3	110	B	$159.95
X-30A	2 m / 70 cm	3.0 / 5.5	150	UHF	2	4.5	135		$69.95
X-50A	2 m / 70 cm	4.5 / 7.2	200	UHF	3	5.6	135	C	$94.95
X-50NA	2 m / 70 cm	4.5 / 7.2	200	N	3	5.6	135	C	$94.95
X-200A	2 m / 70 cm	6.0 / 8.0	200	UHF	4	8.3	112	B	$124.95
X-300A	2 m / 70 cm	6.5 / 9.0	200	UHF	4	10	112		$139.95
X-300NA	2 m / 70 cm	6.5 / 9.0	200	N	4	10	112	B	$139.95
X-510HDM	2 m / 70 cm	8.3 / 11.7	330/250	UHF	5	17.2	90	A	$179.95
X-510HDN	2 m / 70 cm	8.3 / 11.7	330/250	N	5	17.2	90	A	$179.95
X-510NJ	144/430	8.3 / 11.7	200	N	5	17.2	90	A	$199.95
X-3200A [2]	2m/1-1/4m/70cm	6.0 / 7.8 / 8.0	100@	UHF	4	10	112	B	$179.95
X-6000A	2m / 70 / 23cm	6.5 / 9.0 / 10.0	100	N	5	10	112	B	$169.95
BB7V	2-30 MHz		250	UHF	6	5/22	80		$369.95
CP6AR	75/40/15/10/6 m		200	UHF	9.9	15.1	80		$419.95
CP-725H	40 / 15 / 10 / 6 m		500-200	UHF	6.6	11.67	100		$359.95

1. 52-54 MHz only. DPGH62 is adjustable from 50-54 MHz.
2. 15-148 MHz, 100 Watts on 2 m, 200 Watts on 1-1/4 m & 70 cm.
3. 28/50 MHz 400 W PEP, 14/21 MHz 400 W PEP, 7 MHz 200 W PEP.

Diamond Handheld and Receiving Antennas

Model	Description	HRO Price
D-130J	Wideband discone 25-1500 MHz. 20 W transmit 50-1300MHz. 100 W 144-3000 MHz No cable.	$94.95
D-130NJ	Wideband discone 25-1500 MHz. 20 W transmit 50-1300 MHz. 100 W 144-1300 MHz, No cable, Type-N	$95.95
D-3000N	Wideband discone RX 25-3000MHz, TX 50-1300MHz 20 W 50 MHz, 20 W transmit 50 MHz. 100 W 144-1300 MHz, 67" tall, Type N	$129.95
RH-3	2m / 70cm dual-band HT antenna. 1.75" BNC. 120-900 MHz receive.	$26.95
RH-77CA	High gain 2m / 70cm dual-band HT antenna. Receive range to 900 MHz. BNC.	$22.95
RHF-10	144/440. Air Band 6W, Rec Only 150/300/450/800/900MHz,BNC	$21.95
RHF-40	Super flexible version of Model RH-77CA	$27.95
SRHF-40	Super flexible 15" tail SMA 144 / 440MHz HT antenna	$26.95
RH-205	2m HT antenna, telescopic, 5/8 fully extended, 47.5"; 1/4 retracted, 9".	$26.95
RH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" BNC, 10 watts.	$24.95
RH-707	2m / 70cm dual-band, tiltable whip HT antenna. 8-1/4" BNC.	$29.95
RH-951S	High gain 2m / 70 cm / 23 cm slim tri-band HT antenna. Flexible. BNC (Wide band receive)	$44.95
SRHF10	Ht Antenna, 144/440MHz. Air Band 6W, SMA, Rec Only 150/300/450/800/900MHz	$21.95
SRJF-10	144/440 MHz, Air Band 150/300/450/800/900 MHz(Rec. Only), 2.75", 6W, SMA(F) 1/4 wave length	$21.95
SRH-519	2m / 70cm slim dual-band HT antenna. Flexible. 8" SMA, 10 watts.	$26.95
SRH-77CA	High gain 2m/70cm dual-band flexible HT antenna, SMA	$22.95
SRJ-77CA	Same as SRH-77CA for Wouxun, SMA	$24.95
SRH-229	For Alinco DJ-G29T. High gain, flexible whip, 13", 220-900 MHz, 10W, 4dB, SMA	$32.95
SRH-320A	2m/1-1/4m/70cm tri-band HT antenna. Flexible. SMA. 10 watts	$46.95
SRH-789	Telescoping handheld antenna 95-1100 MHz, 6 sections, folds at base	$32.95
RH-789	Same as SRH-789 but BNC connector	$32.95
SRH-805	2m / 70cm / 23cm tri-band HT antenna. 1.75" SMA, 10 watts.	$26.95
SRH-815	2m / 70cm / 23cm tri-band HT antenna. Flexible. 6" SMA, 6 watts.	$31.95
SRH-940	6m /2m /440 MHz SMA HT antenna	$39.95
SRH-999	6m /2m / 70cm / 23cm quad-band HT antenna. Flexible. 21 1/4" SMA, 10 watts.	$54.95

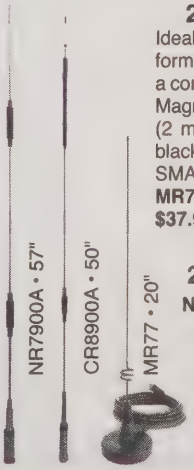
Specialty Antennas

High Power 2 m / 70 cm Mobile

Dual-band mobile antenna. 300 Watts (2 m) and 250 Watts (70 cm). Use K400 and K600 series mounts. **NR7900A HRO Price $84.95**

Quad Band FM

10 m / 6 m / 2 m / 70 cm quad FM band antenna for FT8900R radio or multi radio applications. Use K400 and K600 series mounts. **CR8900A HRO Price $99.95**



2m / 70cm Mobile

Ideal antenna for increased performance of HT radio or where a compact antenna is required. Magnetic mount base. 1/4 wave (2 m) and 1/2 wave (70 cm), black finish. Available in UHF or SMA cable configuration. **MR77 / MR77SMA HRO Price $37.95**

2 m / 70 cm Mobile

NR-770HRKS HRO Price $109.95

2 m / 70 cm Mobile

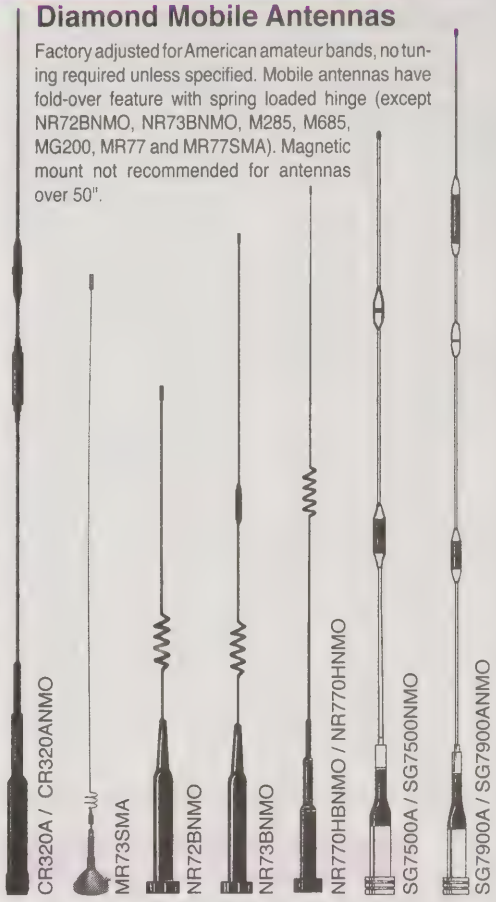
CR270A HRO Price $42.95

ANTENNAS & DUPLEXERS

DIAMOND ANTENNA

Diamond Mobile Antennas

Factory adjusted for American amateur bands, no tuning required unless specified. Mobile antennas have fold-over feature with spring loaded hinge (except NR72BNMO, NR73BNMO, M285, M685, MG200, MR77 and MR77SMA). Magnetic mount not recommended for antennas over 50".

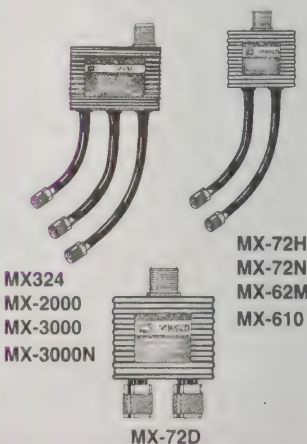


Model	Bands	Gain/dB	Watts	Mount	Lth/in	HRO Price
AZ504SP	2m/70cm	2.15 dBi	50	UHF	15.5	$39.95
AZ504FXH	2m/70cm	2.15 dBi	50	UHF	15.5	$39.95
AZ507RSP	2m/70cm	2.15(2m) 4.9(70cm)	50	UHF	27.5	$46.95
CR-270A	2 m/70 cm	2.15 dBi	50	UHF	17.3	$42.95
CR320A #,4,6	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100	UHF	36	$79.95
CR320ANMO #,4,6	2 m/1 -1/4 m/70cm	2.1/3.8/5.5	100	NMO	36	$79.95
CR627B #,4,5	6m/2m/70cm	2.1/4.5/7.2	150	UHF	60	$84.95
CR627BNMO #,4,5	6m/2m/70cm	2.1/4.5/7.2	150	NMO	60	$84.95
CR8900A 4,7(FM Only)	10m/6m/2m/70cm	2.15(2m) 5.5(70cm)	60	UHF	50	$99.95
D220 discone	100-1600 MHz	2	50	PL-259	35.5	$109.95
MG200 7	2.4 GHz	7	-	N	23.6	$59.95
HF6FX 4,7	6 m	2.15	250	UHF	44	$69.95
HF50CX 4,7	6 m	3.5	200	UHF	71	$99.95
M285 4,8	2 m	3.4	200	UHF	52.4	$31.95
M285SNMO 4,8	2 m	3.4	200	NMO	52.4	$31.95
MR73S Mag Mt	2m/70cm	2.15/3.4	10	SMA	20	$26.95
MR73SJ Mag Mt	2m/70cm	2/3.4	10	SMA	20	$26.95
MR75S Mag Mt	2 m/70 cm	2.15/3.4	35	SMA	20	$36.95
MR75SJ Mag Mt	2 m/70 cm	2/2.4	35	SMA	20	$36.95
MR77 #,7	2 m/70 cm	2.15/3.4	70	†	20	$37.95
MR77SMA #,7	2m/70cm	2.15/3.4	70	&	20	$37.95
MR77SJ Mag Mt	2m/70cm	2.15/3.4	70	SMA	20	$37.95
M685S 4,7	6 m	2.15	200	UHF	52.4	$31.95
M685SNMO 4,7	6 m	2.15 dBi	200	NMO	52.4	$31.95
NR124	23 cm	8.4	100	Type N	25	$49.95
NR124NMO	23 cm	8.4	100	NMO	25	$54.95
NR140BNMO	220 MHz	4	159	NMO	36.2	$46.95
NR22L 4	2 m	6.5	100	UHF	96.8	$64.95
NR2000NA	2 m/70 cm/23 cm	3.15/6.3/9.7	100	N	39	$84.95
NR-72BNMO #,4,7	2 m/70 cm	2.1/2.1	100	NMO	14	$39.95
NR-73BNMO #	2 m/70 cm	2.1/5.3	100	NMO	33	$54.95
NR-770HA	2 m/70 cm	3.0/5.5	200	UHF	40	$48.95
NR-770HNMO	2 m/70 cm	3.0/5.5	200	NMO	41	$53.95
NR-770HB #	2 m/70 cm	3.0/5.5	200	UHF	40	$53.95
NR-770HBNMO #	2 m/70 cm	3.0/5.5	200	NMO	41	$53.95
NR-770HRKS 9	2 m/70 cm	3.0/5.5	200	UHF	40.2	$109.95
NR-7900 4	2 m/70 cm	3.7/6.4	300/250	UHF	57	$84.95
SD330 screwdriver	3-30 MHz		200	UHF	73	$389.95
SG7000A 4,7	2 m/70 cm	2.1/3.8	100	UHF	18	$69.95
SG7500A	2 m/70 cm	3.5/6.0	150	UHF	41	$69.95
SG7500NMO	2 m/70 cm	3.5/6.0	150	NMO	42	$72.95
SG7900A 4	2 m/70 cm	5.0/7.6	150	UHF	60	$99.95
SG7900A/NMO 4	2 m/70 cm	5.0/7.6	150	NMO	62	$114.95

Diamond Duplexers and Triplexers

Model	Port	Freq MHz	CW Watts	PEP Watts	Loss dB	Isol. dB	MIX Conn.	Port Conn.	HRO Price
MX-37	LPF HPF	1.6 - 470 900 - 1300		100 50	.25 .45	45 45	N-Jack(F)	PL-259/12" cable N-Male /12" cable	**$59.95**
MX-62M	LPF HPF	1.6 - 56 76 - 470		200 200	.2 .2	50 50	SO-239	PL-259/12" cable PL-259/12" cable	$69.95
MX-72D	Similar to MX-72H, but Direct Connection								$46.95
MX-72H	LPF HPF	1.6-30 140-150 400-460	400 150 100	400 150 100	.1 .1 .2	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable	$49.95
MX-72N	Similar to MX-72H, but type-N on UHF port								$49.95
MX-72A	Similar to MX-72N, but type-N on MIX Conn.								$54.95
MX-214	LPF HPF	140-150 220 - 225		300 200	.3 .4	40 40	SO-239	PL-259/12" cable PL-259/12" cable	$65.95
MX-324	LPF BPF HPF	1.6-60 220-225 400-550		800 600 500	.3 .4 .4	40 40 40	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$89.95
MX-610	LPF HPF	1.3 - 30 49 - 470		600 500	.2 .25	45 45	SO-239	PL-259/12" cable PL-259/12" cable	$69.95
MX-2000	LPF BPF HPF	1.6-60 110-170 300-950		800 800 500	.15 .20 .25	60 60 60	SO-239	PL-259/12" cable PL-259/12" cable PL-259/12" cable	$83.95
MX-3000	LPF BPF HPF	1.6-160 350-500 850-1300		800 400 200	.15 .25 .30	55 55 55	N-Jack(F)	PL-259/12" cable PL-259/12" cable N-male/12" cable	$79.95
MX-3000N	Similar to MX3000, but with Type-N male on BPF connection								$85.95

\# Black anodized finish.
† Mag mount with 13' RG58 cable w/UHF.
& Mag Mt w/13' RG58 cable w/SMA.
4 Magnetic mounts not recommended. Vehicle ground required.
5 52-54 MHz only.
6 100 Watts on 1-1/4 m; 200 Watts on 2 m and 70 cm.
7 Gain Rated in dBi.
8 Tunable from 144-174 MHz.
9 Black with adhesive-backed mount.



MX-72H
MX-72N
MX-62M
MX-610

MX324
MX-2000
MX-3000
MX-3000N

MX-72D

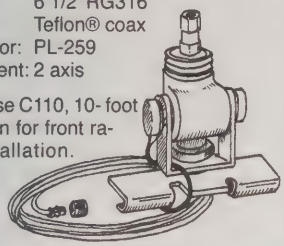
Special Trunk Mount

for 3/8 x 24 thread antennas
K400-3/8C
HRO Price $73.95

Here's the ideal mounting system for Outbacker Perth, OB Jr., and other medium weight antennas. A spring is recommended for stiff or heavy antennas.

Power: 350 Watts RMS
Cable: 6 1/2' RG316 Teflon® coax
Connector: PL-259
Adjustment: 2 axis

Note: Use C110, 10- foot extension for front radio installation. **$19.95**

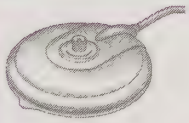


Diamond Accessories

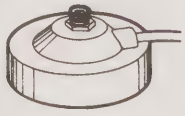
Model	Description	HRO Price
SP-1000	Lightning Protector DC-1000 MHz, Max Power 400 W PEP, SO-239, VSWR <1.2	$29.95
SP-1000PW	Lightning Protector DC-1000 MHz, Max Power 400 W PEP, SO-239(F), SO-239(M), VSWR <1.2	$34.95
SP-3000P	Lightning Protector DC-3000 MHz, Max Power 400 W PEP, Type-N(F), Type-N(M), VSWR <1.2 Waterproof	$41.95
SP-3000W	Lightning Protector DC-3000 MHz, Max Power 200 W PEP, Type-N, VSWR <1.2 Waterproof	$41.95
MGC-50	Window feedthru assembly, HF-50 MHz 50 W, 2 m 40 W, 440 MHz 30 W, 1200 Hz 10 W, SO-239	$53.95
CX-210A	Heavy duty wideband coax switch, DC-1000 MHz. 1.5 kW, UHF(F) to UHF(M) Waterproof	$49.95
CX-210N	Heavy duty wideband coax switch, DC-1500 MHz. 1.5 kW, N connector.	$79.95
CX-310A	Heavy duty 3 position coax switch, wideband. DC-800 MHz. SO-239 connectors.	$89.95
DL-30A	Dummy load. DC-500 MHz, 15 W RMS (max)/100 W peak. PL-259 connector.	$39.95
DL-30N	Dummy load. DC-1500 MHz, 15 W RMS (max)/100 W peak. Type N connector.	$54.95
D38-24	UHF to 3/8-24 Adapter	$19.95
SS-770R	Phasing Harness, 114 MHz, 430 MHz, Input SO-239, Output x2 PL-259	$74.95

Mobile Mounts

Model	Description	HRO Price
C101	UHF base 6.5' RG316 Teflon coax w/PL259	$37.95
C101NMO	NMO base 6.5' RG316 Teflon coax w/PL259	$37.95
C101-3/8C	Replacement cable only for K400-3/8C	$34.95
C101-3/8C Kit	Replacement cable and hardware for K400-3/8C	$44.95
C104SMA	4' RG58/U Extension cable for PL-259. 90 degree SMA Male & SO-239	$16.95
C105SMA	5' RG58/U Extension cable for C101/C101NMO. 90 degree SMA Male	$16.95
C110BNC	10' RG316 extension cable for C101/C101NMO. Use front radio installations. BNC male	$29.95
C110SMA	10' RG316 extension cable for C101/C101NMO. Use front radio installations. SMA male	$29.95
C110	10' mini-8/RG8X extension cable for C101/C101NMO. Use front radio installations.	$19.95
C211	Combination of C101 and C110. 16.5 feet cable assembly	$49.95
C213S	UHF base, 13.5' RG316 Teflon Coax with PL-259	$44.95
C213SNMO	NMO base, 13.5' RG316 Teflon Coax with PL-259	$45.95
CRM	Stainless steel right angle mount with U-bolt	$16.95
DPK-4NM-N	Type N Magnet. 13' 5mm coax w/Type-N plug. Good to 1300 MHz.	$54.95
HRKS	Adhesive backed UHF mount, 13.5' RG316 teflon coax with SMA and PL-259 adapter	$69.95
K400-3/8C [9]	Special mount for 3/8X24 thread Antenna. 6.5 feet RG316 w/PL-259	$73.95
K400C [9]	Deluxe mount with UHF type base. 6.5 feet RG-316 Teflon coax w/PL-259	$73.95
K400CNMO [9]	Deluxe mount with NMO type base. 6.5 feet RG316 Teflon coax w/PL-259	$73.95
K400S	Deluxe mount with UHF type base. 13.5 feet RG316 w/SMA (PL259 adapter included)	$79.95
K400SNMO	Deluxe mount with NMO type base. 13.5 feet RG316 w/SMA (PL259 adapter included)	$79.95
K412C	Trunk/hatchback mount. UHF base, 6.5'Teflon coax w/PL-259. 45" max ant	$59.95
K412CNMO	Trunk/hatchback mount. NMO base, 6.5'Teflon coax w/PL-259. 45" max ant	$59.95
K412S	Trunk / hatchback mt. UHF base, 13.5' RG316 coax w/SMA. (PL259 adapter included)	$69.95
K412SNMO	Trunk / hatchback mt. NMO base, 13.5' RG316 coax w/SMA. (PL259 adapter included)	$69.95
K515S	Deluxe luggage carrier mt. UHF base.13.5 feet RG316 w/SMA(PL259 adapter included)	$69.95
K515SNMO	Deluxe luggage carrier mt. NMO base.13.5 feet RG316 w/SMA (PL259 adapter included)	$69.95
K540KM	Deluxe Mirror/Luggage rack mount. Black, adjustable. 13' RG58C/U w PL259	$59.95
K550KM	Deluxe mini van luggage rack mount. Black, adjustable. 13' RG58C/U w PL259	$69.95
K550L	Oversize version of K550	$46.95
K600M	Tilt angle (0-9 degrees) trunk mount. Black. RG-188 and low loss 7 mm cable.	$59.95
K600S	Tilt angle (0-9 degrees) trunk mt UHF base. 13.5 feet RG316 w/SMA (PL259 adapter inc.)	$62.95
K702M	Deluxe low-profile magnet/suction mount. 6.5" diameter, 13' RG58 & PL-259	$49.95
K9000LRM	Motorized mount for luggage rack. Use C-series cable assemblies	$104.95
K9000LRMO	Same with oversize K515 hardware	$109.95
K9000TM	Motorized mount for trunk lid. Use C-series cable assemblies	$104.95
SPM35	UHF type base on heavy 1.5 lb/4" magnetic, 13' 5mm coax with PL-259.	$44.95
SPMNMO	NMO type base on heavy 1.5 lb/4" magnet, 13' 5mm coax with PL-259	$49.95



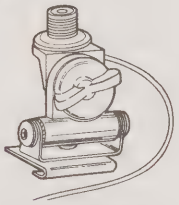
K702M



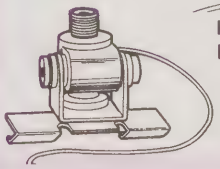
SPM35
SPMNMO
DPK4NM-N



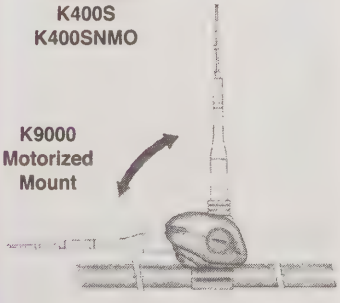
K600M
K600S



K412CNMO
K412SNMO
K412C
K412S



K400C
K400CNMO
K400-3/8C
K400S
K400SNMO



K9000
Motorized
Mount

9. Use C110 for front radio installations

DIAMOND ANTENNA

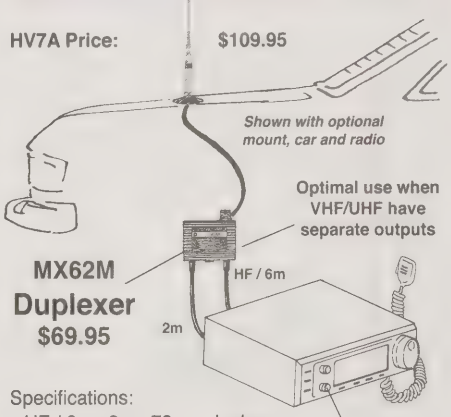
HV7A Mobile Antenna System

For New HF / VHF Tranceivers

(such as: IC706, IC7000, FT100, FT857, FT897 and the FT8900R)

The HV7A has 5 band capability: 70 cm, 2 m, 6 m and 2 HF bands through use of loading coils. Fold-over feature allows for easy access into low overhead buildings.

Bands Supplied:	10 m / 6 m / 2 m / 70 cm
Opt. Loading Coils:	40 m / 20 m / 17 m / 15 m
Power, P.E.P.:	HF 120 W / VHF 200 W
Mount Connection:	UHF
Length:	54" (HV7A)
SWR:	1.5:1 nominal
HV7A Price:	**$109.95**



Specifications:
- HF / 6 m, 2 m, 70 cm duplexer.
- 1.6–56 MHz LPF
- 76–470 MHz HPF
- (76-120 receive only)
- Watts: 600 P.E.P.
- Loss: .2 dB LPF, .3 dB HPF
- Isolation: 50 dB

Optional Loading Coils

HVC14	20 m	$37.95
HVC18	17 m	$37.95
HVC21	15 m	$37.95

Antennas for Handhelds



Antenna Mounts

ALPHA DELTA

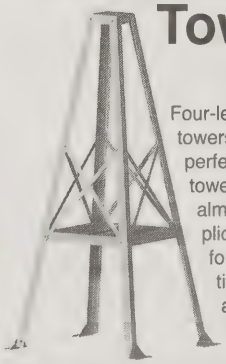


Outpost™ Tripod / Ground Coupler Ground Mount System

HRO Price $275.95

- Matches the base impedance of most mobile HF antennas.
- Fold-over 3/8 x 24 SO-239 top mount.
- Constructed of aircraft 6061-T6 aluminum, stainless steel hardware and wing nuts.
- No digging–no holes in ground–no concrete.
- Fold-out legs act as a large capacitor providing proper coupling to the ground and proper base impedance to the antenna. Fold-up design for 10-minute installation.

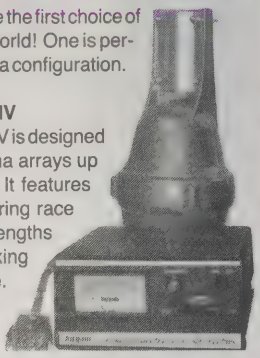
GlenMartin Towers



Four-leg roof-top towers provide the perfect low-cost tower option for almost any application. Great for start-up stations, or alleviating crowded ground-based towers. Whatever the case, GlenMartin Roof-Top mounts are the Solution! Besides unprecedented strength, our roof mounts are maintenance free. No guying required, and all parts are labeled for easy installation. The anodized satin-finish construction will add to the beauty of your roof line for years to come. All roof-tops are UPS shippable. **HRO Price: $CALL**

hy-gain

Hy-gain rotators are the first choice of hams around the world! One is perfect for your antenna configuration.



Ham - IV

The popular Ham-IV is designed for medium antenna arrays up to 15 square feet. It features a dual 98 ball bearing race for load bearing strengths and an electric locking steel wedge brake. Maximum mast size 2 1/16". **HRO Price $599.95**



Tailtwister Series II

This unit handles medium communications arrays up to 20 square feet wind load area. Available with the DCU-1 Pathfinder digital control box or standard analog control box. Has 138 ball bearings for large load bearing strength. Maximum mast size 2 1/16". **HRO Prices: T2X $719.95, T2XD $1229.95**

Ham - V

For medium antenna arrays up to 15 square feet wind load. Includes the DCU-1 Pathfinder digital control unit. No more terminal strips. Features cinch connector plus 8-pin plug at the control box. Maximum mast size 2 1/16". **HRO Price $949.95**

HDR-300A

Choose this rotator for king-sized antenna arrays up to 25 square feet of wind load. Heavy-duty self-centering steel mast clamp and hardware. Digital display accurate to 1 degree. **HRO Price $1349.95**

AR-40

Especially for large FM-TV and compact communication antenna arrays up to 3.0 square feet wind load area. Dual 12 ball bearing race. Automatic position sensor never needs resetting. Maximum mast size 2 1/16". Includes MSLD light duty lower mast support. **HRO Price $319.95**

CD-45II

The CD-45II handles up to 8.5 square feet of antenna wind load when mounted inside the tower or 5 square feet with the included MSLD light duty lower mast adapter. Has 58 ball bearing race. Maximum mast size 2 1/16". **HRO Price $429.95**

DCU-1 Pathfinder

A digital control unit for the T2X, Ham-IV and Ham -V rotators. **HRO Price $699.95**



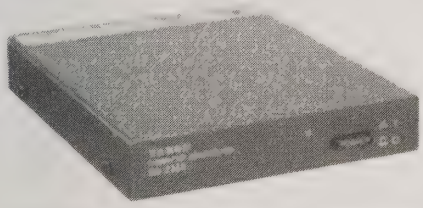
YAESU
The radio

ROTATORS



G2800DXA
The G-2800DXA is a high-technology rotator designed to turn the largest tower-mounted antenna arrays.

G-800SA / G-800DXA
The G-800 rotator series is designed for medium to heavy loads and antennas up to 20 square feet. The G-800DXA is the same as the G-800SA with the addition of presets.



Rotator Computer Controller GS-232B
The GS-232G rotator computer interface provides digital control of Yaesu rotators G-800DXA, G-1000DXA, G-2800DXA, and G-5500.

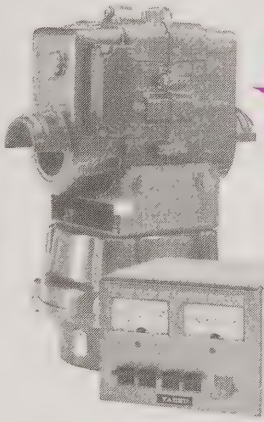
The GS-232B contains its own PIC18C452 microprocessor with ROM and RAM and 10-bit analog-to-digital converter. The 3 wire async serial line can be configured for serial data rates from 1200 to 9600 baud. The unit has a DB-9 male connector for to connection to the RS232C COM port of your computer.

Supplied items include: control cable for the azimuth rotator (5 in to mini DIN), control cable for the Az/El rotator (dual 5 pin to DIN cable), DC power cable, and hook and loop fasteners. This device requires 12 VDC at 110 mA.

Yaesu's high quality rotators for amateurs include models for medium to large arrays and for satellite work. There are also provisions for computer control. Contact your nearest HRO for more specifications and discount prices on Yaesu products.

G-1000DXA
The G-1000DXA is designed to handle bigger arrays up to 22 square feet. A great value.

G-450A
The G-450A is ideal for smaller HF and VHF/UHF antennas. Features 360 degree radial compass display with overlap.



HRO Price $CALL

G-5500
This is the most popular azimuth and elevation rotator for satellite, moon-bounce or other space communications work. It provides horizontal and vertical antenna rotation in a single unit. The control box has two large meters, one showing elevation and the other azimuth. Meter aiming accuracy is within ±4%. The G-5500 provides 180° elevation rotation with a rotation time of 67 seconds. A 360° azimuth rotation takes just 50 seconds. This rotator accepts up to a 2.5" mast, a maximum 1-5/8" horizontal cross-boom and 440 pounds of vertical load. Computer controllable with optional GS-232 computer interface. **HRO Price $CALL**

G-550
This is an elevation rotator for satellite work. The control box shows elevation in degrees. **HRO Price $CALL**



Orion Rotator OR-2800PX
The Orion OR-2800PX is engineered for long life, reliability and performance while turning large antennas or systems. It has a strong ductile iron mast clamp to support up to 3-1/8" masts (optional long bolts required), extended and hardened drive shaft, and prop-pitch style torque plate. The rotator housing fits inside most popular towers and mates to standard tower / rotator plates.

The RC-2800PX Control Box has digital readout, variable speed control, slow start, and reverse delay, programmability, preset, 2 rotator capacity, coast-down, true AZ readout-continuous and infinite limit position control. The USA-made OR-2800PX has a one year warranty. **HRO Price $CALL**

Wind Area Capacity.....35 sq. ft.
Starting Torque .....4200 in. lbs.
Rotating Torque .....3200 in. lbs.
Breaking Torque .....17000 in. lbs
Vert. Load Capacity.....1800 lbs.
Mast Size (O.D.).....1.75-3-1/8"
Rotation Speed (360) .....55-120 sec.
Readout Accuracy .....1 degree
Input Voltage.....110/220 AC
.....50/60 Hz
Motor Voltage .....28-42 VDC
Cable Type .....8 conductor
Weight (Rotator unit) .....42 lbs.

Rotator Specifications

	Model	Input Voltage	Motor Voltage	Rotation Time	Stationary Torque	Rotation Torque	Maximum Windload	Max. Vert Load	Max. Mast Size	Cable Type	Weight lbs (kg)	HRO Price
M2	OR-2800PX	110/220 VAC	28 VDC	55 sec	17,000 in lbs	3200 in lbs	35 sq ft	1800 lbs	3-1/8 in	8-wire	42 (19)	CALL
Yaesu	G-450A	110 VAC	29-32 VAC	51 sec	217 ft lbs	39.8 ft lbs	10 sq ft	242 lbs	2 in	5-wire	7 (3.2)	CALL
	G-800SA	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	CALL
	G-800DXA	110 VAC	24 VDC	55 sec	3456 in lbs	43-79 ft lbs	17 sq ft	440 lbs	2.5 in	6-wire	10 (4.5)	CALL
	G-1000DXA	110 VAC	24 VDC	55 sec	5200 in lbs	79 ft lbs	22 sq ft	440 lbs	2.5 in	6-wire	15 (6.8)	CALL
	G-2800DXA	110 VAC	24 VDC	55 sec	20,832 in lbs	219 ft lbs	34 sq ft	880 lbs	2.5 in	6-wire	26 (11.8)	CALL
	G-5500	110 VAC	24 VAC	58 sec	289 ft-lbs	*	10.7 sq ft	440 lbs	2.5 in	6-wire	20 (9)	CALL
	G-550	110 VAC	24 VDC	67 sec	289 ft-lbs	101 ft-lbs	10.7 sz ft	440 lbs	1-5/8 in	6-wire	7.9 (3.6)	CALL

* Elevation 101 ft-lbs, Azimuth 44 ft-lbs

MA-Series Crank-Up Masts

The premier MA-series crank-up Tubular Towers are designed to be both safe and neighbor friendly. The slender design gives a clean, flagpole-like appearance and is rated at 90 mph winds per the IBC 2006 code. Per TIA/EIA specifications, adequate safety margins are included. International Building Code calculations are available for most models.

The MA-40 and 550 models come standard with flat base, two 1/2" x 10" anchor bolts, wall bracket and rotator plate mounted on top of top section. No guying is required when tower is properly bracketed to the eave of your roof.

MA-series towers are completely self-supporting only when used with accessory MARB or MAB series bases. The MARB series rotator base allows the entire tower and antenna to be rotated from the base (rotator not included). This provides for easy rotator maintenance plus emergency hand rotation of the entire tower and antenna.

The MA-550MDP, 770MDP and 850MDP models include a heavy duty motor drive with positive pull down. The MDP models provide motorized raising and lowering of the tower. A remote control unit (RMC-1000) accessory is available that allows raising and lowering from your ham shack or other remote location.

All models without motor drives come standard with manual hand winches which have load actuated brakes for maximum safety. This feature prevents the winch from free-wheeling and causing injury to you or your installation in the event that you lose your grip during raising or lowering.

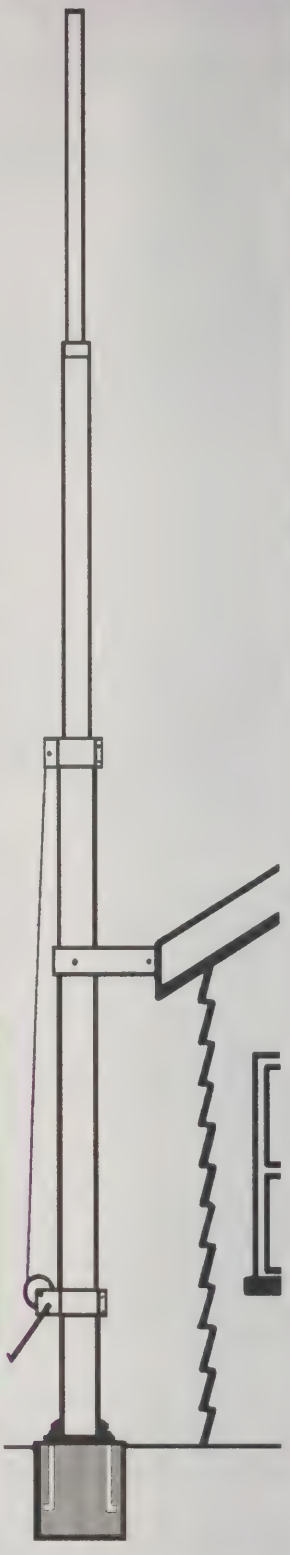
All steel used at US Tower conforms to ASTM specifications. All welding is done by certified factory personnel. All of our towers are factory tested by trained personnel before leaving the plant.

MA-Series Base Information

Foundations are designed in accordance with the International Building Code (IBC) for a "non constrained" condition using Class 5 soil. Alternate or custom foundation designs are available for an extra charge. Anchor rods may be ordered from US Tower; however, reinforcing steel is not provided. Welder's certified IAW AWS D1.1. Contact US Tower for additional information.

Rebar is not provided by US Tower. MA-40 & 550 use their standard bases as a template. These standard bases use only 2 bolts. Wooden template included with MAB & MARB bases.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .



Model Number	Height Maximum	Height Minimum	Sections	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
MA-40	40'	21'6"	2	245	3" sq.	4.5"	CALL
MA-550	55'	22'1"	3	435	3" sq.	6.625"	CALL
MA-550MDP*	55'	22'1"	3	620	3" sq.	6.625"	CALL
MA-770	71'	22'10"	4	645	3" sq.	8.0"	CALL
MA-770MDP*	71'	22'10"	4	830	3" sq.	8.0"	CALL
MA-850	85'	23'6"	5	943	3" sq.	10.0"	CALL
MA-850MDP*	85'	23'6"	5	1130	3" sq.	10.0"	CALL
All Towers will handle 10 sq. ft antenna at 50 MPH winds.							

* These towers also require purchase of MCL-100 or RMC-1000

The Customer is Responsible
for obtaining all local city or county building and tower permits
AND
for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

Call Toll-Free for Discounts on U.S. Towers and Accessories

The factory reserves the right to make changes or modifications without notice.

MA-SERIES ACCESSORIES

MAF Raising Fixture

MAF-Series Raising Fixture accessory for easy raising and antenna servicing. For use with MARB and MAB bases.

Model	Description	Weight
MAF-40	Raising fixture for MA-40	35#
MAF-550	Raising fixture for MA-550	70#
MAF-770	Raising fixture for MA-770	75#
MAF-850	Raising fixture for MA-850	80#

MARB Freestanding Rotator Base

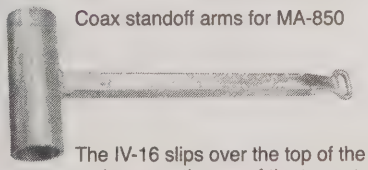
MARB-40	Freestanding rotator base for MA-40 with four 3/4" x 27" anchor bolts and thrust bearing	35#
MARB-550	Freestanding rotator base for MA-550 with four 1" x 27" anchor bolts and thrust bearing	140#
MARB-770	Freestanding rotator base for MA-770 with four 1" x 27" anchor bolts and thrust bearing	195#
MARB-850	Freestanding rotator base for MA-850 with four 1-1/8" x 27" anchor bolts and thrust bearing	280#

MAB Freestanding Type Base

MAB-40	Freestanding hinged base for MA-40 with four 3/4" x 27" anchor bolts	55#
MAB-550	Freestanding hinged base for MA-550 with four 1" x 27 anchor bolts	119#
MAB-770	Freestanding hinged base for MA-770 with four 1" x 27" anchor bolts	175#
MAB-850	Freestanding hinged base for MA-850 with four 1-1/8" x 27" anchor bolts	180#

Coax Standoff Arms

CX-2M	Coax standoff arms for MA-40	4#
CX-3M	Coax standoff arms for MA-550	6#
CX-4M	Coax standoff arms for MA-770	8#
CX-5M	Coax standoff arms for MA-850	10#

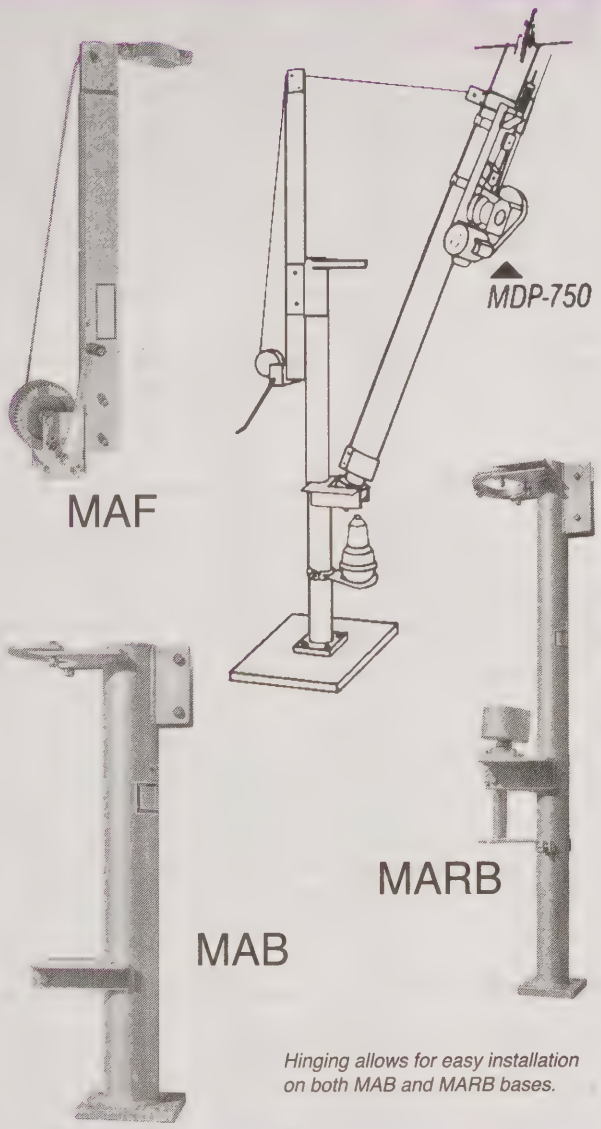


IV 16

IV-16	The IV-16 slips over the top of the mast and rests at the top of the tower to hold inverted vee antennas. The IV-16 cannot be used with the MARB rotator base. Please designate model of tower if ordering alone.	5#

Motor Drives

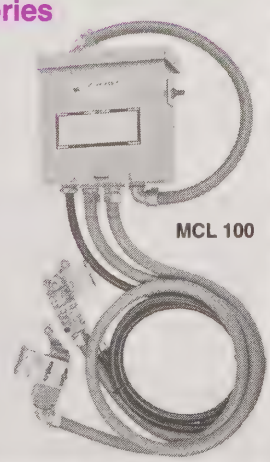
MD-75	Heavy-duty motor drive with 1 HP motor and gear box.	155#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box, and positive pull down.	185#



Hinging allows for easy installation on both MAB and MARB bases.

Remote Control Accessories

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location.	18#
MCL-100	Limit switch control package includes limit switches, limit switch brackets, and control box at the base of the tower.	7#



TMM SERIES

US Tower's latest design includes the compact TMM series towers giving Hams in restricted areas an alternative.

The TMM series has a minimum retracted height of 11'4" (may vary, depending on rotator used) and a maximum height of 47' including mast. At the tower's retracted height, visual impact is reduced to a minimum and antenna servicing is made easier. Typically the tower and antenna are below the roof line of your home when the tower is fully retracted.

The TMM series towers are lightweight, freestanding crank-up towers that allow up to 20.7 square feet of antenna in 90 mph winds per TIA/EIA specifications. The TMM-433HD allows 31.8 square feet in 90 mph winds. These lightweight towers should provide many years of trouble free service. All of our towers have a hot dipped galvanized finish inside and out.

The TMM-433SS and 541SS have a 10" top section which will permit the installation of the Yaesu G800 rotator inside the top section. Oversized rotators will prevent full retraction of your tower; however, they may be used if full retraction is not required. This restriction is dependent upon location of rotator plate. All TMM Series towers include anchor bolts, rotator plate, hinged T-base, load actuated winch, and eight feet of 2" OD x 120" antenna mast.

The TMM-433SS, -433HD and -541SS will accept the MD-75 or MDP-750 motor drive accessories. The MDP-750 motor drive accessory is compatible with both of our MCL-100 and RMC-1000 limit switch packages (see accessories).

TX SERIES

US Tower's freestanding TX series crank-up towers are as strong or stronger than most competitors' heavy-duty models. The TX series towers have 21 foot sections with 4 foot overlap to provide extra height and strength. In addition, the overlap helps prevent binding while lowering your tower in high wind conditions.

The TX series towers have a large enough top section (12 1/2") to permit installation of most rotators inside the section for maximum strength while allowing the section to fully retract. Cross bracing at critical points on the tower ensures safety and additional strength. All US Tower crank-up towers have a heavy-duty, hot dipped galvanized finish both inside and out, which should provide many years of trouble free service.

The TX series towers come complete with rotator plate and base hardware which includes large steel anchor bolts and heavy-duty steel T-base that allows the tower to hinge on for easy installation. All T-bases will accept the TRX series raising fixtures for easy one-man installation. All TX series towers include Fulton hand winches except MDP and MDPL models, which feature automatic load actuated brakes for maximum safety. Masts and motor drives are available as accessories (see accessory page).

The TX-472MDP comes complete with MDP-750 motor drive with positive pull-down feature. The TX-489MDPL includes the MDPL-1000 motor drive and level wind feature. A limit switch assembly (MCL-100), or a remote raising device (RMC-1000) is required for all 72' and under towers that will be paired with either the MDP-750 or MDPL-1000 motor drive units (see accessory page for description).

US Tower's TX series requires no guying. The wind loading is calculated at 90 mph winds per TIA/EIA specifications.To assist you in applying for necessary construction permits, IBC 2006 calculations are available for most models.

HDX SERIES

US Tower's HDX series heavy-duty crank-up towers have up to 2 1/2 times more windloading capacity than others commonly advertised. This superior strength allows for large stacked arrays, while using our commercial type bases and anchor bolts that can be easily installed and vertically adjusted. All HDX series T-bases are designed to use our TRX series raising fixtures to make installations and antenna servicing a one man job.

US Tower carries as accessories many different sizes and strengths of masts which can be used with the HDX series towers. The HDX-572MDPL and 589MDPL motorized towers provide dual level wind, positive pull down and heavy duty gear box features. The HDX-589MDPL comes complete with the MCL-100 limit switch package included. All towers using MDP-750 and MDPL-1000 motor drives must use either the RMC-1000 accessory limit switch package or the MCL-100 (see accessory page), which allows the raising and lowering of your tower from the comfort of your ham shack or any remote location .

All HDX series towers come complete with rotator plate, anchor bolts, and heavy-duty T-base (doubles as template). US Tower's special T-base design allows the tower to hinge for easy installation. US Tower's crank towers require no guying. The HDX Series towers are rated at 90 mph winds per TIA/EIA specifications. To assist you in getting a construction permit, IBC 2006 calculations are available for most towers.

CRANK-UP TOWER BASE INFORMATION

Foundations are designed in accordance with the International Building Code (IBC) for a "non constrained" condition using Class 5 soil. Alternate or custom foundation designs are available for an extra charge. Anchor rods may be ordered from US Tower; however, reinforcing steel is not provided. Welder's certified IAW AWS D1.1. Contact US Tower for additional information.

Because of wide variations throughout the country in zoning requirements and loading conditions (snow, wind, ice, etc.), it is the responsibility of the customer to make certain that his Tower conforms to all applicable codes. We recommend you obtain all necessary permits prior to purchase .

The Customer is Responsible
for obtaining all local city or county building and tower permits
AND
for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

SELF-SUPPORTING CRANK-UP TOWERS

Tower Specifications

COMPACT TMM-SERIES CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TMM-433SS	33' w/o Mast	12'3"	4	315	10"	18"	CALL
TMM-433HD	33' w/o Mast	12'3"	4	400	12.5"	20 7/8"	CALL
TMM-541SS	41' w/o Mast	13'	5	430	10"	20 7/8"	CALL

Towers handle 18 sq. ft. antenna at 50 MPH winds. TMM-433HD handles 24 sq. ft.

TX-SERIES FREE-STANDING CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
TX-438	38'	21'9"	2	355	12.5"	15"	CALL
TX-455	55'	22'6"	3	670	12.5"	18"	CALL
TX-472	72'	23'3"	4	1040	12.5"	21 5/8"	CALL
TX-472MDP*	72'	23'3"	4	1210	12.5"	21 5/8"	CALL
TX-489MDPL	89'	24'	5	1800	12.5"	25 5/8"	CALL

All Towers will handle 18 sq. ft. antenna at 50 MPH winds.

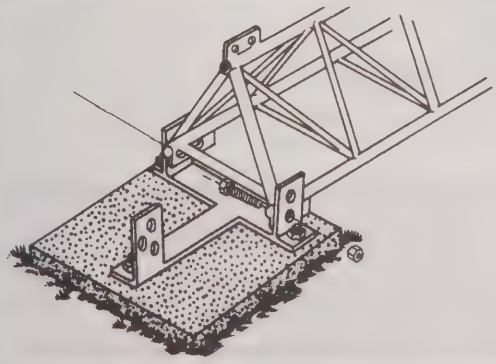
* This tower requires purchase of MCL-100 or RMC-1000

HDX-SERIES HEAVY-DUTY CRANK-UP TOWERS

Model Number	Height Maximum	Height Minimum	Sec-tions	Weight Pounds	Sec O.D. Top	Sec O.D. Bottom	HRO Price
HDX-538	38'	21'9"	2	600	15"	18"	CALL
HDX-555	55'	22'6"	3	870	15"	21 5/8"	CALL
HDX-572MDPL	72'	23'3"	4	1600	15"	25 5/8"	CALL
HDX-589MDPL	89'	24'	5	2440	15"	30 5/8"	CALL
HDX-689MDPL	89'	24'9"	5	3400	18"	37 1/8"	CALL
HDX-5106MDPL	106'	25'6"	6	3850	15"	37 1/8"	CALL

All Towers will handle 30 sq. ft. antenna at 50 MPH winds.
HDX-689MDPL rated at 60 sq. ft of antenna at 50 mph winds.
HDX-5106MDPL rated at 35 sq. ft. of antenna at 50 mph winds.

Call Toll-Free for Discounts on U.S. Towers and Accessories

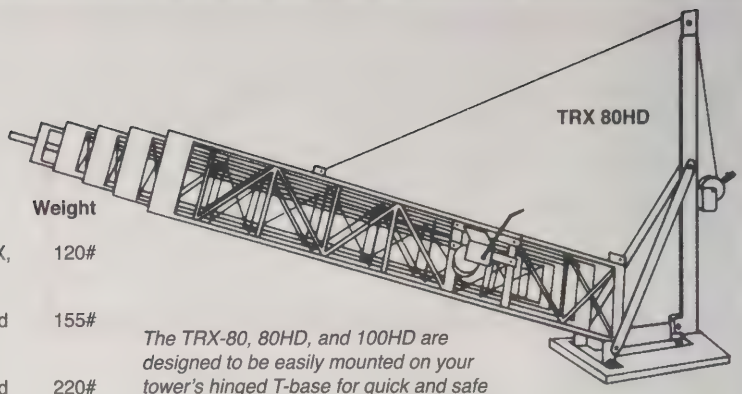




The factory reserves the right to make changes or modifications without notice.

Raising Fixture

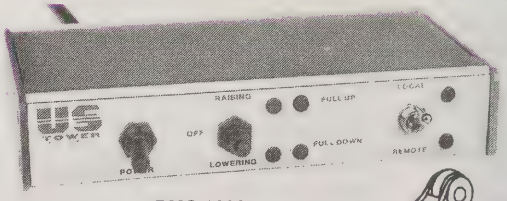
Model	Description	Weight
TRX-80	Standard model tower raising fixture for TMM, TX, and HDX series towers.	120#
TRX-80HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	155#
TRX-100HD	Heavy-duty model tower raising fixture for TX and HDX series towers.	220#



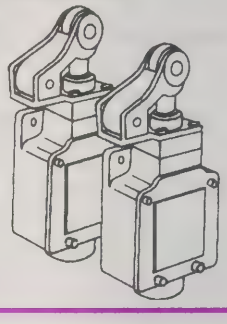
The TRX-80, 80HD, and 100HD are designed to be easily mounted on your tower's hinged T-base for quick and safe one-man installation or antenna servicing.

Remote Control

Model	Description	Weight
RMC-1000	Relay operated remote control for raising and lowering your tower from your ham shack or other remote location. The RMC-1000 includes limit switches, limit switch brackets, and two relay boxes. The RMC-1000 can only be used with the MDP-750 and MDPL-1000 motor drives.	18#
MCL-100	Limit switch control package. The MCL-100 includes limit switches, limit switch brackets and control box at the base of the tower. The MCL-100 allows you to raise and lower your tower with automatic shut down when maximum or minimum height is reached. The MCL-100 can only be used with the MDP-750 and MDLP-1000 motor drives.	7#



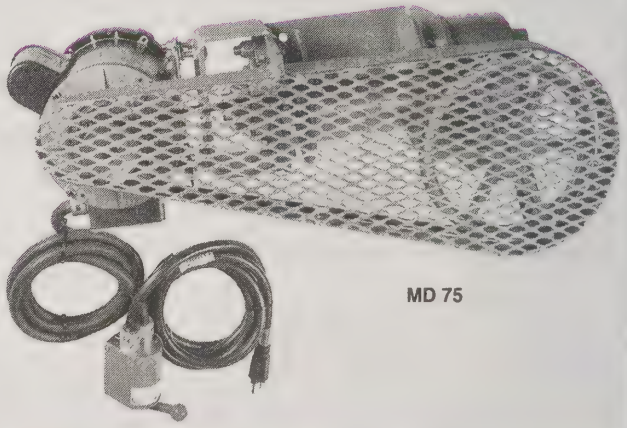
RMC 1000



These items can only be installed by the factory at the time of your tower order. These items cannot be installed in the field and must be a part of your complete tower order.

Motor Drives

Model	Description	Weight
MD-75	Heavy-duty motor drive with 1 HP motor and 1 gear box.	55#
MDP-750	Heavy-duty motor drive with 1 HP motor, gear box and positive pull down. US Tower's positive pull down feature is designed to mechanically apply the same strength in the retraction process as is used in the raising of your tower. Positive pull down is very important in lowering your tower in high wind conditions. The MDP-750 differs from the standard motor drive unit (MD-75) which releases tension on the cables allowing the weight of the upper sections to be the only lowering force.	185#
MDPL-1000	Heavy-duty motor drive with 1 HP motor, heavy-duty gear box, positive pull down and dual level wind features. Dual level wind is an exclusive US Tower design allowing the cable to wind on the motor drum in a uniform manner. This prevents the cable from overlapping on the drum.	220#



MD 75

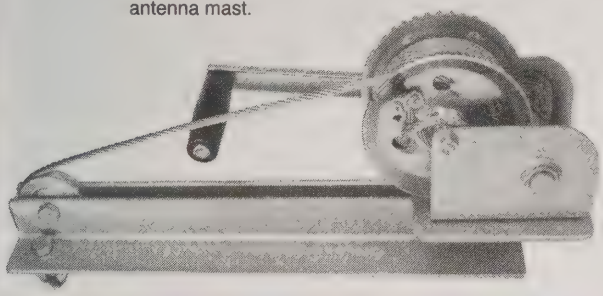
Call factory for replacement 1 HP motors, hand winches, limit switches, 3/16" x 7" x 19" and 1/4" x 7" x 19" aircraft cable, anchor bolts, belts, pulleys, sprockets, and modified bases. The factory reserves the right to make changes or modifications without notice.

The Customer is Responsible
for obtaining all local city or county building and tower permits **AND** for taking the tower off the freight truck when it is delivered. Please arrange for adequate help.

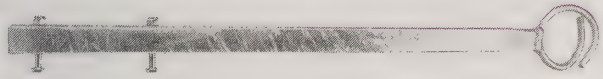
CRANK-UP ACCESSORIES

Mast Raising Fixture

Model	Description	Weight
MRF	Mast raising fixture with winch and cable that attaches to the top of your tower to assist in raising and lowering your antenna mast.	20#

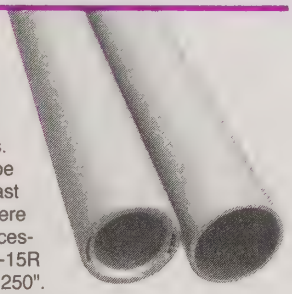


Coaxial Arm Sets



Model	Description	Weight
IV-16	The IV-16 attaches over the top of the mast near the top of the tower to hold inverted vee antennas. Please designate model tower to be used.	5#
CX-2	Set of 2 coax standoff arms	6#
CX-3	Set of 3 coax standoff arms	8#
CX-4	Set of 4 coax standoff arms	10#
CX-5	Set of 5 coax standoff arms	13#
CX-6	Set of 6 coax standoff arms	15#

Masts

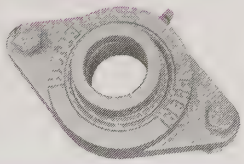


US Tower offers three different types of masts. The M-5, 10, 15 and 20 masts have .120" wall thickness. The M-15R and 20R have steel pipe inserts in the lower half of the mast which provides extra strength where most needed without adding unnecessary weight in the top portion. The M-15R and 20R have a wall thickness of .250". The CM-20 has a wall thickess of .375".

Model	Description	Weight
M-5	2" O.D. x 5 foot galvanized mast	14#
M-8	2" O.D. x 8 foot galvanized mast	20#
M-10	2" O.D. x 10 foot galvanized mast	25#
M-15	2" O.D. x 15 foot galvanized mast	40#
M-15R	2" O.D. x 15 foot reinforced galvanized mast	50#
M-20	2" O.D. x 20 foot galvanized mast	55#
M-20R	2" O.D. x 20 foot reinforced galvanized mast	70#
CM-20	2" O.D. x 20 foot chromolly mast	140#

Thrust Bearing

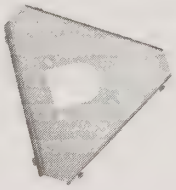
Model	Description	Weight
TB-2US	Thrust Bearing for 2" mast, 2 flange holes	10#



Anchor Bolts and Rotator Plates



3/4" x 27"	Anchor bolt with 2 nuts	5#
1" x 27"	Anchor bolt with 2 nuts	10#
1-1/8" x 27"	Anchor bolt with 2 nuts	12#
RP-3	Rotator plate for 10" section	5#
RP-4	Rotator plate for 12.5" section	7#
RP-5	Rotator plate for 15" section	9#



Tower Accessories

R- Required
S- Standard
O - Optional

	TX438	TX-455	TX-472	TX-472MDP	TX489MDPL	HDX-538	HDX-555	HDX-572MDPL	HDX-589MDPL	HDX-689MDPL	HDX-5106MDPL	TMM-433SS	TMM-433HD	TMM-541SS	HRO Price
Masts															
M-5	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$74.95
M-8	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$114.95
M-10	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$129.95
M-15	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$199.95
M-20	O	O	O	O	O	O	O	O	O	O	O				$249.95
M-15R	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$299.95
M-20R	O	O	O	O	O	O	O	O	O	O	O				$379.95
CM-20	O	O	O	O	O	O	O	O	O	O	O				CALL
Raising Fixture															
TRX-80	O	O				O	O					O	O	O	$799.95
TRX-80HD			O	O	O		O	O	O						$1,099.95
TRX-100HD										O	O				$1,499.95
Coax Standoff Arms															
CX-2	O					O									$99.95
CX-3		O					O								$129.95
CX-4			O	O				O				O	O		$199.95
CX-5					O				O					O	$279.95
CX-6										O	O				$369.95
Motor Drives															
MD-75	O	O				O	O					O	O	O	$1,799.95
MDP-750	O	O	O	S		O	O					O	O	O	$2,799.95
MDPL-1000			O		S		O	S	S	S	S				$3,999.95
Remote Control															
RMC-1000	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$1,869.95
MCL-100	O	O	O	O	O	O	O	O	S	O	O	O	O	O	$899.95
Miscellaneous															
3/4" X 27 bolts	S														$46.95
1" X 27" bolts		S			S	S		S				S			$56.95
1-1/8" X 27" bolts			S	S			S		S	S	S		S	S	$75.95
RP-3												S		S	$61.95
RP-4	S	S	S	S	S								S		$74.95
RP-5						S	S	S	S						$113.95
MRF	O	O	O	O	O	O	O	O	O	O	O		O		$499.95
TB-2US	O	O	O	O	O	O	O	O	O	O	O	O*	O	O*	$179.95
IV-16	O	O	O	O	O	O	O	O	O	O	O	O	O	O	$74.95

* TMM-433SS and TMM-541SS require a #3 top assessory kit for the optional TB-2US.

WEATHER STATIONS

Peet Brothers

Tracking more than 100 weather values



Ultimeter 2100

HRO Price $399.95

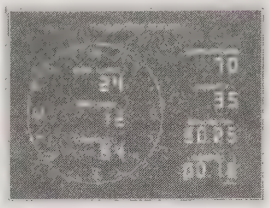
The Ultimeter 2100 features a stunning platinum-tone housing with brilliant blue display backlighting. An illuminated keypad provides exceptional visibility in darkness or low-light conditions. The weather sensor technology includes a unique all-digital wind sensor. Its microprocessor is 8 times faster and has 4 times the memory of Peet Brothers' earlier weather stations.

- Barometric storm alert, wind speed, wind direction, outdoor temperature, indoor temperature, wind chill, time, date and (with optional sensors) indoor humidity, dew point and rainfall.
- Two versatile 4-mode serial ports can accept remote commands. Communicate with external devices to transmit data or collect it remotely by phone, modem, or radio link. The 5 minute packet mode is perfect for economical radio "beacon" transmission. The 2100 comes "APRS-Ready," requiring only direct cable connection to a TNC (cable not provided).
- An exclusive Triple-Bank Memory System stores highest and lowest readings – today's, yesterday's and long term – plus the date and time that every high and low occurred.
- Long term highs and lows can be reset individually or use a master reset.
- Built-in static electricity discharge protection for all outdoor sensors; has a 3 prong grounded AC adapter.
- Rain rate alarm gives flash flood alerts.
- The 2100 has a full array of adjustable alarms. A battery test circuit warns of a weak battery.

Ultimeter 100

HRO Price $199.95

The Ultimeter 100 automatically stores today's and yesterday's highs, lows and total rainfall so you can compare the readings. Also stores long term high, low and rain information since it was last reset. A 3-mode serial port for interfaces with telephone, modem or radio reporting.



Weather Picture

HRO Price $369.95

(aluminum version)

The Weather Picture receives data from an Ultimeter and continuously displays your pre-selected data. The 8 inch compass rose and big 0.8 inch illuminated red numerals are clearly visible day or night. View even from across the room.



Ultimeter 800

HRO Price $298.95

The Ultimeter 800 has nearly all the features of the Ultimeter 2100 except the barometer. It has wind speed, wind direction, outdoor temperature, indoor temperature, wind chill temperature, time, date, automatic leap year adjustment and automatic scan mode as standard functions. With optional sensors, rain, outdoor humidity, indoor humidity and dew point reading are available. It automatically stores today's and yesterday's highs, lows and total rain fall. It also stores long term highs and lows. Alarms are provided for high wind, high and low outdoor temperature, high and low indoor temperature. The serial port has three output modes.

WeatherText™

Special

WeatherText™ is an RS-232 serial data output mode in which the instrument puts out one human-readable text Weather Report each minute. Viewable on a PC monitor using terminal software such as HyperTerminal or may be transmitted as a data packet. For a limited time every 800 / 2100 Ultimeter Weather Station purchased will include the WeatherText™ Tools Data Logger key, including software and PC interface cable. ***$69 retail value***

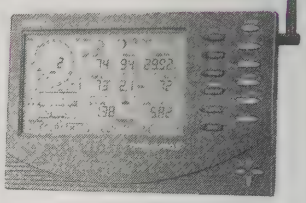
Davis

Wireless Weather Stations

NEW!

Vantage Pro2™

HRO Price $489.95



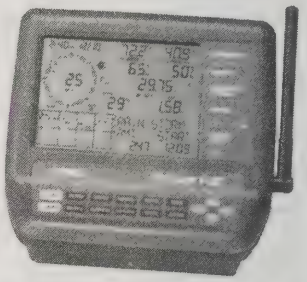
The Vantage Pro2™ weather station has a versatile sensor suite that combines our rain collector, temperature and humidity sensors, and anemometer into one package. Customize by adding consoles or special-purpose options. Available in both wireless and cabled versions.

This is the first and only weather station in its class to use frequency hopping spread spectrum radio technology to transmit weather data wirelessly up to 1,000 ft (300 m) outdoors, line of sight. Typical range through walls under most conditions is 200 to 400 feet (60 to 120 m). Add wireless repeaters for distances up to 1.7 miles (2.7 km).

- Has a large, backlit 3.5" x 6" (9 x 15 cm) LCD screen.
- Updates every 2.5 seconds.
- Optional WeatherLink data logger and software offer additonal analyses.
- Options are available for UV/solar, soil moisture, short and long-range repeaters, and much more.
- Electronic components are housed in a weather-resistant shelter.
- Power the console with the included power adapter or with three C batteries (not included).
- Comes with mounting hardware. Add optional #07717 Mounting Pole or #07716 Mounting Tripod.

Vantage Vue®

HRO Price $389.95



This wireless weather station provides accurate, reliable weather monitoring in a self-contained, easy-to-install system. Includes outdoor sensor array and LCD console.

- Vantage Vue radio-compatible with our flagship Vantage Pro2 professional stations so you can mix-and-match most components.
- Station includes temperature, wind, humidity, and rain sensors; console; and mounting hardware (mounting pole sold separately).
- Console shows: time and date, moon phase, forecast icons, temperature, humidity, barometric trends, heat index, and wind chill.
- Rain totals and rain rate are updated every 20 seconds for the last 25 hours, days, months.
- Domed buttons are easy to sense and press. They glow-in-the-dark for use at night.
- Track daily highs and lows, temperature changes by the hour and barometric value changes.
- Graph the last 25 hours, days or months. View up to 50 graphs including temperature, rain, rain rate, wind and barometric pressure—all on the console.
- Set 22 simultaneous, different alarms to warn of dangers such as high winds, freezing temperatures, rain rate, flood warning, and more.
- Windspeed updates every 2.5 seconds. Displays in miles per hour, meters per second, kilometers per hour and knots. Measures wind direction in compass points or degrees.
- Frequency-hopping spread spectrum radio ensures consistent transmission up to 1,000 ft. (300 m) from integrated sensor suite to console.

General Information for Our Valued Customers

Easy Ordering

Toll-free 800 numbers located throughout the United States are available for orders. This provides personnel at one location or another to answer your questions for extended hours Monday through Saturday. You will find the same low prices at all locations and, thanks to computers, we have the stock levels of all locations available to each salesperson for estimates of availability and delivery.

24 Hour "On-Line" Ordering is now available on the INTERNET! URL is http://www.hamradio.com

Shipments are made from any of our locations that has the particular items you need in stock. In most cases, the shipment will be made from the location nearest you (if stock is available). HRO is trying to provide the quickest shipments in the industry using these methods.

California customers can now order using toll-free numbers to speak to their California store of choice.

Sales Tax

State and local laws require us to collect and remit State sales / use tax on orders shipped from any of our locations INTO Arizona, California, Colorado, Georgia, Texas or Virginia.

You will find that this small extra charge will be more than overcome by the convenience of the largest ham radio inventories in the United States. You will also find courteous and knowledgeable salespeople to assist you. We think you will find HRO to be the company you want backing you when it comes to dealing with any problems you might have with manufacturers or shipping companies.

Phone Orders

To place a phone order using a credit card, please have the following information available if you are a first-time caller or have not made a recent purchase from HRO.

We will ask for your callsign (if any), credit card number, expiration date, your home telephone number, and possibly the name, address, and telephone number of the bank listed on your charge card statement.

Payment

We accept Visa, MasterCard, American Express, and Discover Card. Personal checks are also accepted; however, processing time may delay shipment by some 10 days.

When using a credit card, please have the card in front of you since we will need all the information, including the name of the issuing bank. If the card holder's BILLING address differs from the shipping address, please be sure to specify both addresses and telephone numbers. For your protection, we thoroughly investigate the validity of all credit card purchases.

COD Orders

COD payments must be made by cashiers check or money order at the time of delivery. There is a small fee for COD shipments.

Commercial Sales Purchase Orders

Written purchase orders will be accepted from city, state, and federal agencies, and, with prior approval of credit, from commercial organizations. HRO quotes, in most cases, prices that require payment on receipt of merchandise. You may find a surcharge for credit terms applied to your pricing. Please indicate that you require terms when calling for price quotes.

Delivery

Free UPS Ground Transportation in the continental US on most items over $100.

All Alaska and Hawaii shipments can now be shipped by UPS Ground as well as by Blue Label (2nd Day Air) or Red Label (Overnight) or USPS. Please ask for charges.

In a Hurry? If necessary to expedite shipments, UPS has Red Label (overnight), Blue Label (2nd-day) and Orange Label (3 day) services available at an extra cost. Please request charges for these services.

Foreign Deliveries: We ship world-wide. Contact our stores, by fax or email, with your needs. We can give you quotes and details for placing your foreign order. Payment methods include wire transfer direct to our bank as well as payment by VISA/ MC charge cards or check drawn in U.S. Funds from a U.S. Bank. Shipments are made (depending on size) by UPS, FED EX, DHL, or international air mail. Some orders to some foreign countries cannot be insured to the full value.

Truck Delivery: On day of delivery by truck, please be sure to have enough help, and / or proper equipment on hand for unloading merchandise. Truck drivers are NOT required to provide assistance. If you are not experienced at handling large, awkward items such as towers, antennas or amplifiers, please ask properly trained people to assist you.

Canadian Orders can now be shipped via UPS. These costs will be added to your invoice.

Damaged Items

UPS If the item is obviously damaged, note this with the driver and refuse shipment. This item will be returned to HRO and another will be sent at no additional charge. If hidden damage is noted, contact UPS as soon as possible. They will arrange pickup. Once the item is received by HRO, a replacement will be sent.

TRUCK If there is damage or the shipment is short, it is the customer's responsibility to file the claim with the trucking company. At the time of receipt of item, it is recommended that you have the driver write "damaged" or indicate shortage on the bill of lading he gives to you. Be sure to have the same notation as well as drivers signature on his copy also.

MAIL It is the customer's responsibility to file all loss or damage claims with the postal department.

Prices

Many prices shown are suggested list price. In most cases we offer large discounts. Equipment manufacturers constantly change prices, offer specials or react to the international exchange rates. Simply call one of our 800 numbers and our staff will be happy to quote you the current selling price of the item you are interested in. Prices are subject to change without notice or obligation to the customer. Sorry, we cannot honor typos in this catalog.

Software

Software is sold on a non-returnable basis. Any software problems will be resolved under the terms of the manufacturer's warranty.

Lost Items

When your order is delivered, please carefully count items and if anything is missing, notify HRO at once.

Occasionally, cartons shipped at the same time will arrive at their destination two or three days apart.

If you notify HRO within 10 days, we will replace lost or damaged items after completion of proper documentation and acceptance by the shipping agency.

New Equipment Returns

Products are not sold for evaluation. Under some circumstances (at the discretion of HRO) and with prior approval of the store of purchase, HRO will accept an item for return. Under most circumstances a 15% restocking fee and all freight charges will be assessed.

Your means of refund for returns will be the same as that used for your original payment except for cash, which will be refunded by check. HRO will pay from its corporate offices. It can take up to two weeks.

Defective merchandise may be returned within 10 days of the original purchase for exchange. Original receipt must accompany the return. Contact your salesman for details.

Manufacturer's New Equipment Warranties

Ham Radio Outlet supports all manufacturer's warranties. Actual warranty terms are included within the shipping container of most items. If needed, you may request from any of our locations a free copy of the manufacturer's written terms for any warranteed product. Please request by model number and indicate the page in this catalog that represents the product.

Ham Radio Outlet will in many cases provide in-store repairs; please contact the store of purchase for information. It will be necessary to provide us with the invoice number and purchase date, as most manufacturers need this information to process under their FREE warranty repair terms.

New Equipment Warranty Returns

When returning equipment for repair, please pack the item in original packing material or something similar to provide adequate protection during the shipping process. Note on box: "ATTENTION SERVICE." Include a copy of your purchase invoice, and a complete and detailed description of the problems. Without the invoice or a complete description, delays will be experienced in providing the proper service and returning the item to you. Be sure to insure the package for its replacement cost.

HRO will repair or replace the defective item at our option. If the item is found to be defective under the terms of the manufacturer's warranty, no charge will be made for service or return shipping within continental USA. It is the customer's responsibility to ship all defective items to the service center for warranty repair.

HRO Extended Warranty

HRO now offers an optional Extended Warranty Program for most Amateur Radios, which must be purchased within 30 days of the purchase of the related product. The Extended Warranty Program starts at the conclusion of the new product original warranty period, and must be processed by HRO directly via any of our stores. The Extended Warranty Program can be purchased for one (1) or two (2) additional years, does not apply to accessory items, and is available to the original purchaser only and not transferable. See page 27 for details.

Problems

HRO prides itself in its ability to service the customer. If there is a problem please contact the manager of the store from which you purchased the merchandise. If for some reason your problem cannot be remedied by that store manager, please feel free to call Ham Radio Outlet Corporate Headquarters at (925) 831-1771 and explain the situation. At this point our national sales staff will see that your problem is addressed.

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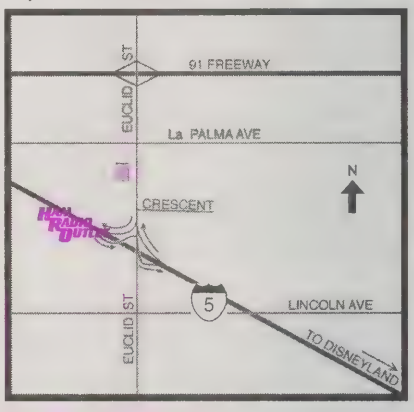
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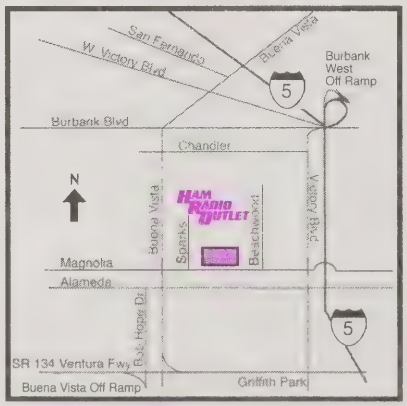
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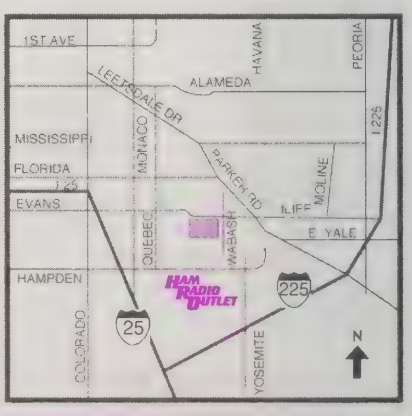
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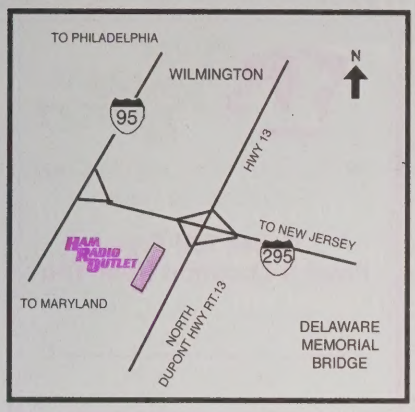
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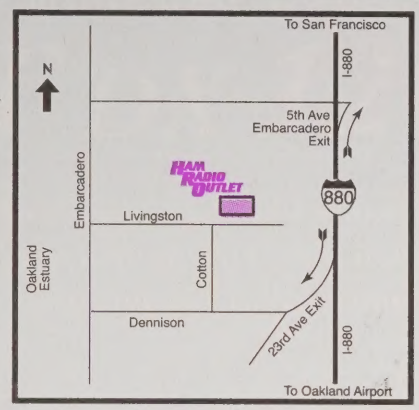
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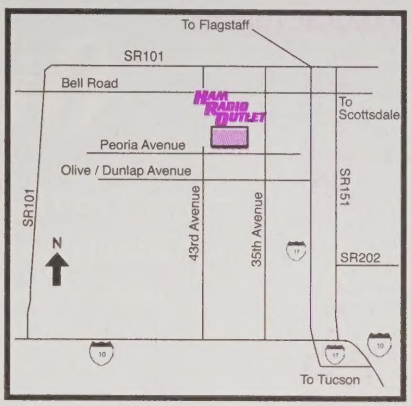
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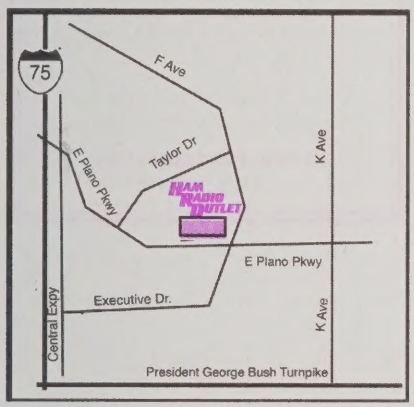
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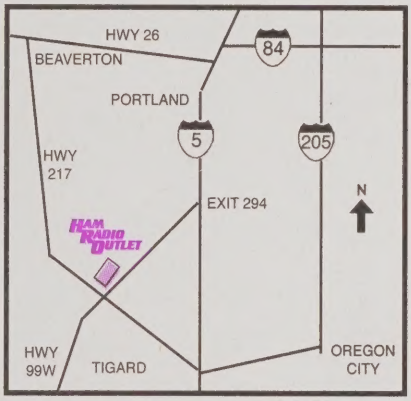
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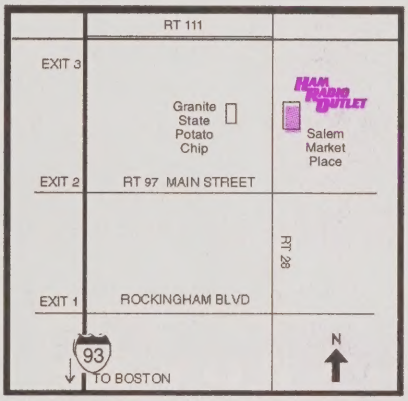
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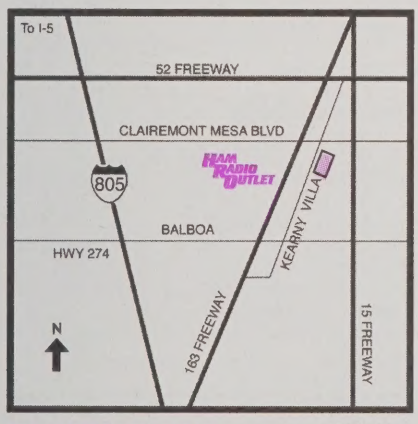
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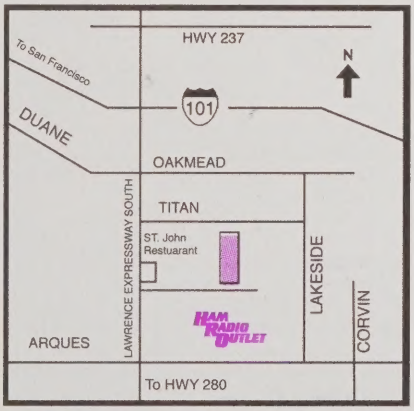
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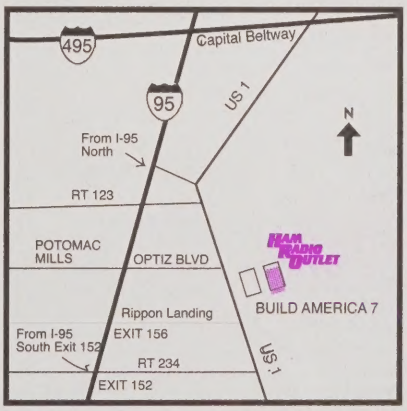
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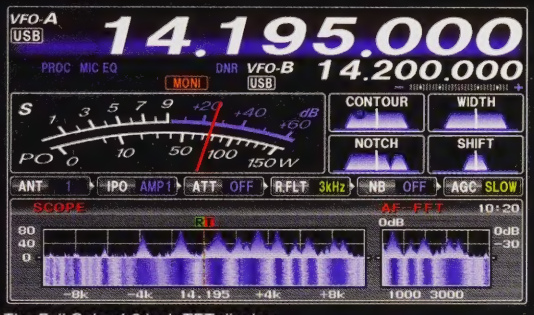
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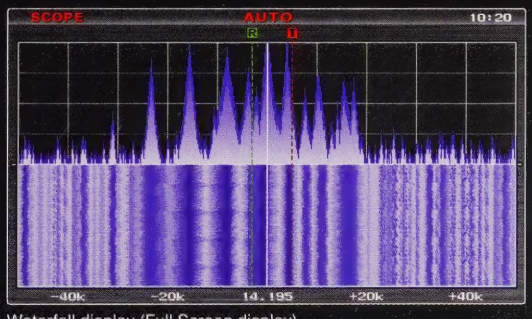
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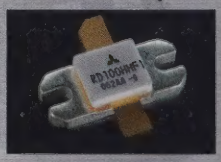
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